

ST-6-TGG™ and ST-12-TGG™ PRESSURELESS STEAM COOKER WITH GAS GENERATORS



WARNING

Improper Installation, adjustment, alteration, service, or maintenance can cause property damage, injury, or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

MODEL

ST-6-TGG
ST-12-TGG

COVERING

- Installation
- Operation
- Service and Parts

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

Post in a prominent location to be followed in the event the user smells gas. This information shall be obtained by consulting the local gas supplier.



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1. INTRODUCTION

This service and parts manual contains general information, installation operation, principles of operation, troubleshooting, and maintenance information for the Market Forge ST-6 Pressureless Steam Cookers. Also included is a parts list in which each replaceable part is identified and shown in an accompanying exploded view.

1.1 DESCRIPTION

The ST-6-TGG and ST-12-TGG is a pressureless steam cooker consisting of two independently controlled compartments enclosed in a single cabinet. Each cooking compartment is provided with steam by individual gas generator rated at 50,000 Btu/hr. Each compartment is equipped with a separate three-piece door with inner gasket plate isolated from the exterior surface. Door latches operate by action for positive sealing of inner door. Steam and steam-condensing circuits are electrically controlled. Operating controls are displayed on a single front-mounted panel and include separate power switches and timers with indicator lights for selection of constant steam or 60-minute-long duration cooking.

A separate steam source is not required for operation of the pressureless cooker. The model ST-6 TGG is powered by twin gas steam generators totalling 100,000 Btu/hr. rate. The cooker is equipped for connection to all necessary utilities, gas, electricity, hot and cold water, and an open drain.

1.2 BASIC FUNCTIONING

The Model TGG may be operated with only one compartment in use; or both may be used simultaneously. Each compartment is equipped with identical controls, allowing selection of constant steam or 60-minute timer operation. The cooker becomes operational when the power switch is depressed to "ON" and the timer is set to constant steam, or the timer is set at the desired cooking time and the compartment door is closed. The indicator light comes on, allowing steam to flow into the compartment.

When steam flowing inside the compartment has raised the interior temperature to 195°F, the contacts of a thermostatic switch automatically close, completing the circuit to the timer motor and starting the cooking time period. At the end of the set interval, timer contacts switch to shut off the cooking operation and sound a signal buzzer. The buzzer is silenced by returning the timer dial to the OFF position. In the constant steam mode, operation will be continuous.

Steam emitted from the compartment along with liquid cooking drainage are directed through a drain screen inside the compartment into a cooker drain line. Both drain lines are connected to a common condenser box located in rear. A cold water solenoid valve connected to the condenser box is automatically actuated by a thermostatic switch to condense the steam to water prior to discharging into an external drain.

1.3 SERVICE

Required service, both preventive and corrective, is explained in Section 6. Should repairs be required, a network of authorized agencies is available to assist with prompt service. A current Directory of Authorized Service Agencies may be obtained by contacting:

Product Service Department
Market Forge
35 Garvey Street
Everett, Massachusetts 02149
Telephone (617) 387-4100

The model and serial numbers must be referenced when corresponding with Market Forge. The data plate containing the serial number pertaining to the equipment is located toward the front on the top panel of the cooker.

2. INSTALLATION

2.1 ASSEMBLY

The Model ST-6-TGG is shipped strapped and bolted to a skid, with cabinet feet in a separate container. Steps required for assembly are as follows:

1. Remove the straps and four bolts that fasten the equipment frame to the skid.
2. Install feet in threaded mounting locations of the cabinet frame.
3. Mount the two baffles on studs located on the right-inside of the cooking compartments.
4. Mount the four pan support racks in brackets inside control compartments.
5. Attach the drip trough on studs located on the face of the unit.

2.2 SETTING IN PLACE

The location of installation must be under an exhaust hood, which will remove gas combustion products, small amounts of water vapor emitted when the cooker doors are opened, and exhaust fumes from the air. Level the unit in final location by turning the adjustable feet. Using the cabinet top as a reference, obtain level adjustment left-to-right and front-to-back.

CAUTION

- Keep this appliance area free and clear from combustibles.
- Do not obstruct the flow of combustion and ventilation air.
- This installation must conform with local codes, or in the absence of local codes, with the National Fuel Gas code, ANSI Z223.1—Latest Edition. For installation in Canada, this appliance is to be in accordance with the current CAN/CGB-B149 (.1 or .2) Installation Code for Gas Burning Appliances and Equipment and/or Local Codes.
- This appliance, when installed, must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electric code, ANSI/NFPA70—Latest Edition. For installation in Canada, all electrical connections are to be made in accordance with CSA C22.1 Canadian Electrical Code Part 1 and/or Local Codes.

- The boiler and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressure in excess of $\frac{1}{2}$ psig (3.45 k/PA).
- The wiring diagram adhesive label is located on the inside of the front panel.
- This product must be installed in a room with adequate air supply.
- Minimum clearances from both combustible and non-combustible surfaces are 2" (51 mm) from right and left wall and 2" (152 mm) from rear wall. Suitable for installation on combustible floors/counters.
- This unit is serviceable from the front and right side. Do not install in such a manner that a service person cannot remove the side panels. The optimum clearance on the right side is 12" (302 mm), 24" (604 mm) on the left.
- Keep this manual for future reference.

2.3 GAS CONNECTIONS

- a. The generator is factory-adjusted for a gas input of 50,000 Btu/hr. at the pressure indicated. Please read the rating plate on top of the unit. If this plate is marked for a different gas than that supplied, notify your dealer immediately. Install an external gas supply shut-off valve in a visible and accessible location. If the unit is placed at the minimum side clearances rather than the optimum side clearances, the only acceptable location for the gas supply shut-off valve is under the unit in the space provided by the legs.
- b. Use new iron or steel pipe complying with the latest ANSI Standard for Wrought-Steel and Wrought-Iron Pipe, B36, properly threaded, reamed, and free from chips, oil, and dirt. If pipe dope is used, apply a moderate amount, leaving two end threads bare. Pipe dope must be resistant to LP gas. Connect the gas line into the bottom (inlet) side of the shut-off valve. The supply pressure must be at least 1" (25 mm) water column higher than the manifold or regulator pressure for proper function of the regulator. If it is not, check the supply pipe for blockage or excessive pressure drop and make necessary corrections.
- c. Perform a gas leak test of all newly made joints, as well as those leading to the main gas control valve. Use a soap solution. DO NOT USE FLAME.

2. INSTALLATION (cont'd.)

- d. Natural gas units are equipped with a pressure regulator factory-adjusted to give 4" (102 mm) water column manifold pressure.
- e. Propane gas units are equipped with a pressure regulator factory-adjusted to give 10" (254 mm) water column manifold pressure.
- f. Refer to "Gas Burner Adjustment Instructions" (page ____).
- g. **ONLY A LICENSED GAS FITTER SHOULD MAKE GAS LINE CONNECTIONS.**

2.4 ELECTRIC SERVICE CONNECTIONS

Connect cooker controls to 110/120 volt AC, 60 Hz, single-phase branch circuit rated 15 amps capacity. Wiring will conform to the requirements of national and local electrical codes. (220 volts, 50 Hz, single-phase for export units.)

ONLY A LICENSED ELECTRICIAN SHOULD MAKE ELECTRICAL CONNECTIONS.

2.5 WATER CONNECTIONS

Before connecting water to this unit, have water supply analyzed to make sure that hardness is no greater than 2.0 grains per gallon and pH level is within the range of 7.0–8.5. Water that fails to meet these standards should be treated by the installation of a water conditioner.

EQUIPMENT FAILURE CAUSED BY INADEQUATE WATER QUALITY IS NOT COVERED UNDER WARRANTY.

CAUTION

PVC or CPVC are not acceptable materials for drains.

There are two water inlets, one for the boilers marked "HOT" and the other for the cold water condenser marked "COLD." Please connect hot or cold water to the boiler water inlet and only cold water to the condenser water inlet.

CAUTION

Do not connect hot water to the cold water condenser water inlet.

2.6 INSTALLATION CHECK-OUT

After cooker is set in place, and gas, water, and electrical connections are made, the cooker must be given a thorough check-out. Correct operation is explained below. If the equipment performs as described, it is ready for final purge prior to cooking use; if not, consult the troubleshooting guide in this manual. Before making this check-out, the operator must be thoroughly familiar with the operating procedures in Section 3 and with the function of each control described in Table 3-1. Refer to Figure 3-1 for identification of controls required in the following procedures.

2.6.1 Warm-Up

Push the power switch(es) to the "ON" position(s). You will hear water entering the unit through the solenoid valve(s), filling the generator(s).

Once the water level in the generator(s) has reached the appropriate level, the solenoid valve(s) will close, and the gas burners will be lit. After a short time (approximately 8 minutes), the red "READY" light(s) will come on, indicating that the unit is ready to make steam.

2.6.2 Timed Steam Mode

Set the selector/timer knob to 10 minutes and close the door. You will hear steam flow entering the cavity, and cold water flow into the drain. When the timer reaches 0 minutes, the buzzer will sound. The buzzer is silenced by returning the selector/timer knob to the "OFF" position. The red ready light will stay illuminated.

2.6.3 Constant Steam Mode

The constant steam mode overrides all other cooking modes. This mode is entered by turning the selector/timer knob to the constant steam position on the dial (green area). With the knob set for constant steam and the door closed, you should hear steam enter the cavity and cold water flow into the drain.

2. INSTALLATION (cont'd.)

2.6.4 Shut-Down Procedure

1. Flip main power switch to "OFF." As this is an automatic steam generator system, it will drain itself.
2. Check that all timer dials are in the "OFF" position.
3. Leave the cooking compartment doors slightly ajar to extend the life of the door gaskets.

2.7 REVERSING THE DOORS

The Pressureless Steam Cooker has a reversible cooking compartment door. This section contains instructions for reversing this door.

1. Turn off the power to unit.
 2. Open the cooking compartment door.
 3. Remove the two screws that attach the top hinge to the front of the unit.
 4. Slide the door upward, off the bottom hinge.
 5. Remove the two screws that attach the bottom hinge to the front of the unit.
 6. Remove the right and left side panels by unscrewing one screw on each panel and sliding the panel down..
 7. Remove the door interlock assembly by unscrewing the two nuts that hold it in place (assembly is attached to the screws in the top right hinge mounting holes, see fig 2-1).
 8. Remove the four screws in the right side hinge mounting holes and install them in the left side hinge mounting holes (where the hinges were originally mounted).
 9. Using the nuts removed in step #6, reinstall the door interlock assembly onto the 2 (two) screws in the lower left hinge mounting holes (See Fig 2.1) by moving the assembly over the cooking compartment to the other side of the unit. **Rotate the door interlock assembly 180° for installation**, so that the switch is now facing up..
 10. Reinstall for the top hinge and screw into the right lower hinge mounting holes. **Rotate the hinge 180° for installation**, so that the pin which the door rides on is now facing up. The hinge must be rotated because it will now function as the bottom hinge. **DO NOT COMPLETELY TIGHTEN THE HINGE MOUNTING SCREWS YET.** These will be used later for adjusting the door.
 11. Remove the door latch assembly from the face of the unit. The two (2) nuts mounting the door latch are located behind the face of the unit and must be accessed where the rightside panel was removed.
 12. Remove the two (2) white hole plugs from the left door latch mounting holes, and insert them into the right door latch mounting holes (where the door latch assembly was originally mounted).
 13. Rotate the door latch assembly 180°, and install into the left door latch mounting holes.
- NOTE: Each stud on the latch assembly should have a plastic washer, a spring, a plastic washer and a Nyloc type nut.
14. To adjust the tension of the door latch, tighten both nuts down until the springs are fully compressed, then back each nut of 1 1/2 turns.
 15. **Rotate the hinge 180° for mounting.**
 16. Slide the remaining hinge into the top door bearing..
 17. Slide the door and hinge assembly down onto the hinge which you have already mounted to the front of the unit. Use the two screws to mount the top hinge into the right upper hinge mounting holes. **DO NOT COMPLETELY TIGHTEN THE HINGE MOUNTING SCREWS YET.**
 18. Slowly push the cooking compartment door closed until it is latched.
 19. The cooking compartment door can be raised, lowered, and/or rotated into position by bumping it with the palm of your hand or by using a small rubber mallet.
 20. First, check the alignment at the front of the door by making sure that the striker in the door is centered with the latch mechanism on the front of the unit.
 21. Square the door to the unit by raising or lowering the hinge side of the door, keeping the latch centered with the striker.
 22. Visually inspect the door. Be sure that the door is square to the unit, the striker is centered with the latch, and the gasket is in contact with the entire lip of the cooking compartment.
 23. Gently open the cooking compartment door, taking care not to move it out of position.
 24. Tighten all four (4) door hinge bracket mounting screws.
 25. Close and visually inspect the door again, as described in step #22.
 26. Reinstall the left and right panels, using the screws for each panel.

2. INSTALLATION (cont'd.)

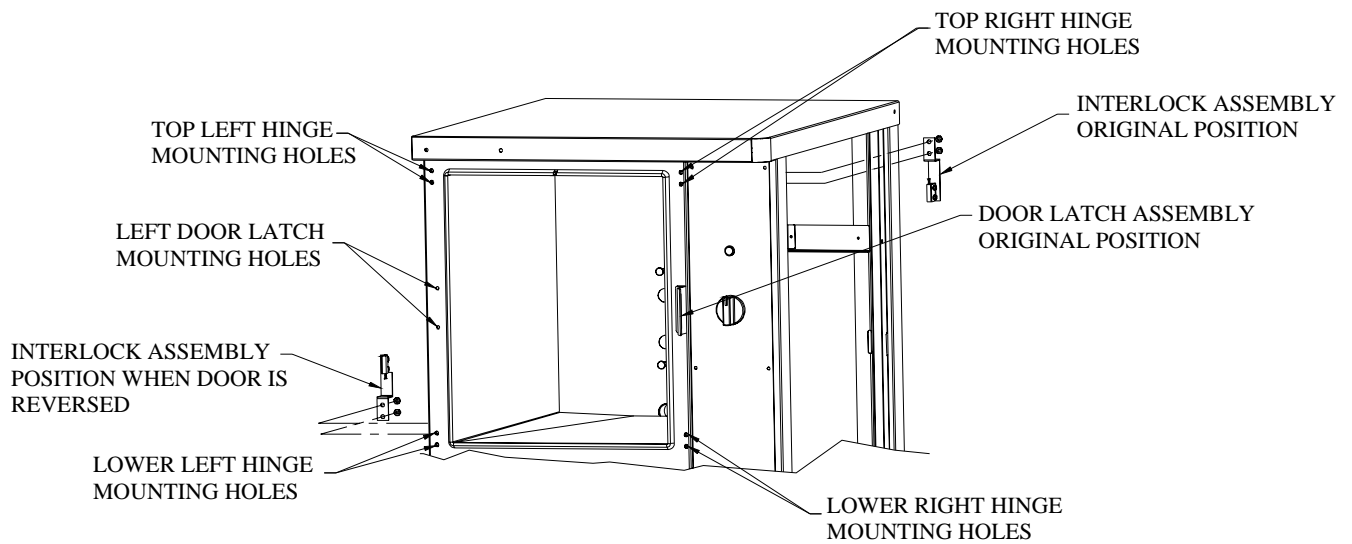


Figure 2-1. TYPICAL DOOR LAYOUT

3. OPERATION

3.1 OPERATING CONTROLS AND INDICATORS

The controls and indicators required to operate the cooker are listed in Table 3-1, together with a short functional description of each. Figure 3-1 shows the physical location of each control and indicator.

3.2 OPERATING PROCEDURES

The ST-6-TGG pressureless steam cooker defrosts frozen foods and cooks fresh and defrosted foods. Each cooking compartment permits selection of continuous (constant steam) cooking or timed (0–60 minutes) cooking. Instructions for operation are included in this section. Consult Test Kitchen Bulletin for detailed cooking information.

3.2.1 Daily Firing Procedure

1. Turn gas valve to “OFF” located at lower front of unit.
2. Wait 5 minutes for unburned gas to vent.
3. While this is taking place, flip power switch from “OFF” to “ON”. Wait 5 minutes for water to fill in boilers.
4. Open main gas valve.
5. Turn knob from “OFF” to “ON” when the generator is ready to create steam (Approx 195°F). The red ready light will come on.

3.2.2 Cooking

NOTE

The red steamer ready light must be on before any controls become operational.

1. Slide pans of food into cooking compartment pan supports.
2. Close cooking compartment door.
3. Set timer cooking time:
 - a. CONSTANT STEAM—for continuous cooking
 - b. 60-MINUTE TIMER—for timed cooking.

4. Set appropriate timer to the required cooking time (see Test Kitchen Bulletin in Section 3.5).
5. Turn off buzzer, which sounds to indicate cooking is complete, by setting timer dial (1) to the OFF position.
6. Open door slightly at first letting most of the steam out of the compartment and then fully open the door.
7. Unload by sliding pans of food from pan supports, taking care to avoid hitting compartment opening.

3.2.3 Daily Shut-Down Procedure

1. Flip “Power” switch from “ON” to “OFF”. the generators will automatically drain.
2. Check both timers dials are in the “OFF” position.
3. Keep both compartment doors “Open”

CAUTION

When the unit is not in use, leave the cooking compartment door slightly ajar to prolong the life of the door gasket.

3.3 CLEANING

3.3.1 Daily Cleaning

After each period of daily operation (more frequently as required to maintain cleanliness), the cooker should be thoroughly cleaned by completing the following steps:

1. Remove left- and right-side pan supports, baffles, and drain screens by lifting up and off mounting studs. Wash with a mild detergent. Rinse and set aside for reassembly.
2. Wash cooking compartment interior using a mild detergent and water. Rinse and dry thoroughly.
3. Replace pan supports, baffles, and drain screens in compartment and leave door open.

3.3.2 Prolonged Shutdown and Cleaning

This section includes instructions for prolonged shut-down of the ST-6 TGG pressureless steam cooker.

3. OPERATION (cont'd.)

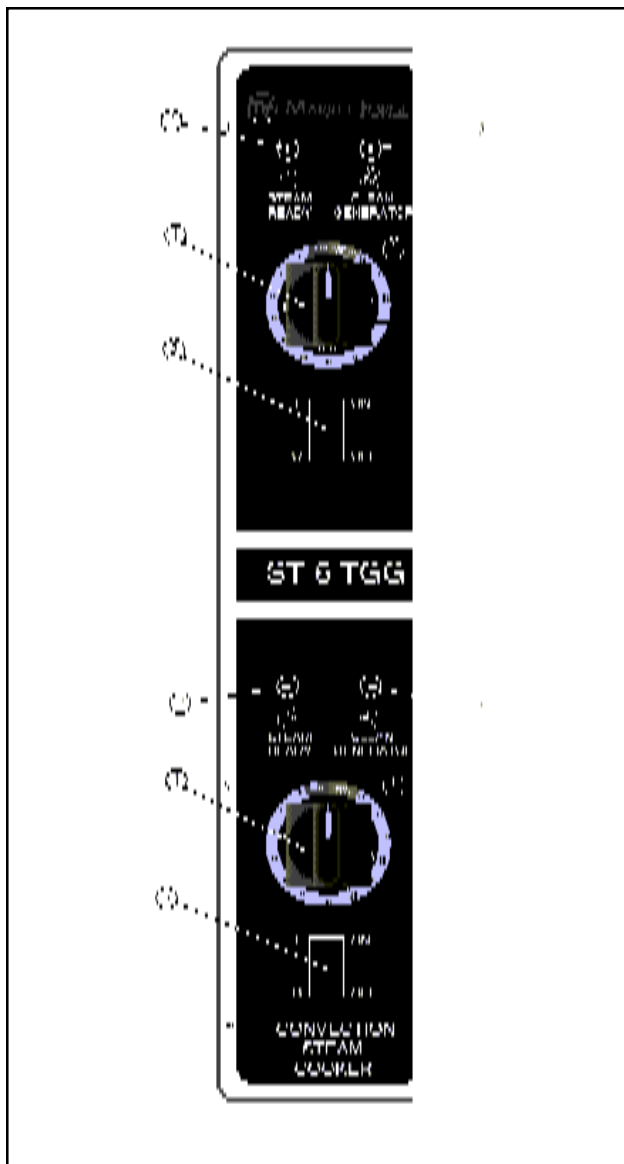


Figure 3-1. Controls and Indicators

1. Press the power switch into the "OFF" position. The steam generator will automatically drain.
2. Clean the cooking compartment as described in Section 3.3.1 of this manual.
3. The steam generator must be rinsed and drained. Refer to Section 3.4, *Cleaning the Generator*, for complete instructions.

CAUTION

- Disconnect the power supply to the steam generator before servicing.
- Contact the factory, the factory representative, or a factory-authorized service company to perform maintenance repairs.
- Keep this manual for daily reference.

3.3.3 Generator Cleaning

The ST-6-TGG is designed with an advanced cleaning system that notifies the user that the steam generator needs to be cleaned. Your steamer permits you to quickly clean the generator. The cleaning sequence is as follows:

- The amber "CLEAN" light illuminates when scale builds up in the tank and on the heating element.
- When the unit is to be used, the unit must be cleaned as follows:
 1. Turn the timer switch to the "OFF" position.
 2. Turn off the water supply from its source.

TABLE 3-1
CONTROLS AND INDICATORS
(See Figure 3-1)

FIG. 3-1 REF.	DESCRIPTION	FUNCTION
1	Timer/Constant Steam	Controls cooking up to 60 minutes or uses constant operation.
2	Indicator Light (red)	When lit, indicates that cooker is in operation, or ready to cook.
3	Indicator Light (amber)	When lit, indicates steam generator needs cleaning/deliming.
4	Buzzer	Signals end of cooking period (not shown).
5	Power Switch (lit)	Turns power on to the steamer.

3. OPERATION (cont'd.)

3. Turn power switch off and drain the steam generator that needs cleaning.
4. Turn the power switch on.
5. Remove the cleaning solution inlet cap located on the right hand side of the upper brow.
6. Using a kitchen funnel, pour Market Forge's TOTAL CONCEPT™ deliming solution (P/n 20-0318) into the generator (2 quarts).
7. Add 5 quarts of water to fill the generator to $\frac{3}{4}$. The heater relay will click on.

CAUTION

Read directions and information on TOTAL CONCEPT™ deliming solution container before using.

8. Allow the unit to preheat until the red "READY" light comes on.
9. After the ready light is on, set the timer for about 1 hour.
10. When timer has counted to zero and the buzzer sounds, the "clean" light should be off. If the light is not off, repeat Step 10.
11. Now the system needs to be rinsed, which is accomplished by:
 - turning the power off (the unit drains)
 - turning the water supply on at its source
 - turning on the power permitting water to enter the generator
 - allowing the unit to reach preheat conditions (green light on)
 - setting timer for 10 minutes
 - draining the rinse water after the buzzer sounds by turning off the power.

After rinse water is drained, turn the power on, wait for the steam ready light, and you are ready to cook.

3.4 DRAINAGE

3.4.1 Cooking Compartment Drainage

The bottom of the cooking compartment is angled slightly toward the rear of the unit. This assures that any condensate build-up or spills will be directed toward the drain hole, which is located at the rear bottom center of the cooking compartment. Any liquid exiting the cooking compartment runs down the cooking compartment drain tube and into the condenser box, where it is cooled down to temperatures below 140°F prior to entering the drain line.

3.4.2 Drip/Spill Trough Drainage

The ST-6 TGG pressureless steam cooker has a drip/spill trough below the bottom cooking compartment door. It will catch any condensate gathering on the front of the unit when the door is opened.

3. OPERATION (cont'd.)

3.5 TEST KITCHEN BULLETIN

Model ST-6- & 12-TGG Pressureless Cooker Facts On Parade

1. Frozen vegetables should always be cooked in perforated 12" x 20" x 21/2" (1/1 65mm) pans 71/2 lbs (34 kg) maximum per pan.
2. Frozen entrees should be underlined with a perforated pan for best results. If they are defrosted first, the heating time will be decreased.
3. Fresh foods may also be cooked in this unit. Vegetables and other foods where the stock is not to be retained should be cooked in perforated 12" x 20" x 21/2" (1/1 65mm) pans for the most nutritious results.
4. There is a thermostatic time delay built into this unit which adapts the unit to the proper cooking time. This means that the total time will usually be longer than the time setting.
5. There is a safety microswitch on the door which shuts off the steam each time the door is opened if the unit is in the cooking cycle.
6. Both compartments may be filled and timers set simultaneously.
7. Total cooking time will vary depending on the load, even though the timer setting is the same.
8. All foods, except cakes and pastry, can be cooked in a steam cooking unit.
9. Steam cooked meals have greater nutritional value since they retain most of their vitamins and minerals.
10. Because foods are cooked faster by the higher temperatures of steam cooking, they can be prepared closer to serving time, insuring maximum freshness.
11. Steam cooked foods have a higher percent yield more portions per dollar spent.
12. Food may be served from the same pan in which it is steam cooked, thus reducing food breakage since there is no extra handling or transferring of food from cooking pans to serving pans. It also reduces pot washing tasks.
13. Some important advantages of steam cooking are labor saving, reduced operating costs, space saving, and the lifting of heavy stock pots is eliminated.
14. Rice and spaghetti products, if thoroughly wet at the start of the cooking process, are very easily prepared.
15. Food such as potatoes, poultry, seafood, and some meats may be blanched in the steam cooker, thus reducing the total cooking time and grease absorption.
16. Fuel is used only when the steam cooking unit is in operation.
17. The steam cooker will loosen foods burned on pans making washing easier.
18. Solid pans are recommended when liquid is to be retained and perforated pans when the liquid is not to be retained.
19. Eggs may be cooked out of the shell if they are to be chopped which eliminates peeling after steaming.
20. The steam cooker can be opened during the cooking period to add or remove items. If any time is lost, and adjustment may be made on the timer.
21. Steam cooking information, including recommended pan size and type, weight per pan, cooking times and pan yields are given on the following pages of this bulletin.

3. OPERATION (cont'd.)

The ST-6-TGG pressureless cooker is a two-compartment unit. Each compartment holds three 12" x 20" x 2 1/2" or 12" x 20" x 4" pans. This unit enables the cook to prepare foods close to the time of service. The cooking times given are timer settings and should be set on a preheated compartment. There is a thermostatic time delay in each compartment that adjusts the total time depending on the temperature and amount of the food. Therefore, the total time will be greater than the timer setting. At the end of the timer cooking cycle the bell will ring, steam will stop flowing, and the food can be removed.

FROZEN VEGETABLES

ITEM	Approx. Frozen Weight Per Pan	Recommended 12" x 20" (1/1) Perforated Pan	Number of Pans	Timer Settings in Minutes	Approx. Number Cooked Servings Per Pan
Asparagus Spears	7 1/2 lbs. (3.4 kg)	2 1/2" (65mm)	1-3	12-15	30 3 oz. (85 g)
Beans, Green Regular Cut	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	8-12	25 3 oz. (85g)
Beans, Green French Cut	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	12-15	25 3 oz. (85 g)
Beans, Lima	7 1/2 lbs. (3.4 kg)	2 1/2" (65mm)	1-3	12-15	30 3 oz. (85 g)
Broccoli	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	4-6	25 3 oz. (85 g)
Brussels Sprouts	7 1/2 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	10-15	30 3 oz. (85 g)
Carrots	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	10-15	25 3 oz. (85 g)
Cauliflower	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	7-12	25 3 oz. (85 g)
Corn-Cut	7 1/2 lbs. (3.4 kg)	2 1/2" (65mm)	1-3	8-12	30 3 oz. (85 g)
Mixed Vegetables	7 1/2 lbs. (3.4 kg)	2 1/2" (65mm)	1-3	8-12	30 3 oz. (85 g)
Peas (Loose)	7 1/2 lbs. (3.4kg)	2 1/2" (65mm)	1-3	3-5	30 3 oz. (85 g)
Spinach	9 lbs. (4kg)	2 1/2" (65mm)	1-3	Must be defrosted	30 4 oz. (115 g)
Squash	12 lbs. (5.4 kg)	2 1/2" (65mm)	1-3	Must be defrosted	50 3 oz. (85 g)

FROZEN PREPARED ENTREES

ITEM	Weight Per Pan	Recommended 12" x 20" (1/1) Perforated Pan	Number of Pans	Timer Settings in Minutes	Approx. Number Cooked Servings Per Pan
Lobster Tails 6-8 oz. (170-255 g)	7-8 lbs. (3.2-3.6 kg)	2 1/2" (65mm)	1-3	15-25	15 6 oz. (170 g)
Shrimp, C.D.P.	16-20 lbs. (7-9 kg)	2 1/2" (65mm)	1-3	8-11	75 3 oz. (85g)
Shrimp Green	16-20 lbs. (7-9 kg)	2 1/2" (65mm)	1-3	11-15	50 3 oz. (85 g)
Bulk Pack Frozen	3 1/2-4 lbs. (1.6-1.8 kg)	2 1/2" (65mm)	1-3	35-45	10 6 oz. (170 g)
Bulk Pack Defrosted	3 1/2-4 lbs. (1.6-1.8 kg)	2 1/2" (65mm)	1-3	25-35	10 6 oz. (170 g)

3. OPERATION (cont'd.)

PRESSURELESS STEAM COOKING TIMER SETTINGS AND PORTIONS

VEGETABLES

ITEM	Approx. Frozen Weight Per Pan	Recommended 12" x 20" (1/1) Perforated Pan	Number of Pans	Timer Settings in Minutes	Approx. Number Cooked Servings Per Pan
Beans, Snap Green or Waxed	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	18-22	25-30 3 oz. (85 g)
Beets (50mm) 2" Diameter	7 1/2 lbs. (3.4 kg)	2 1/2" (65mm)	1-3	40-50	30-35 3 oz. (85g)
Broccoli 1/2-3/4" (12-20 mm) Stalks	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	14-18	25-30 3 oz. (85 g)
Carrots Sliced	9 lbs. (4 kg)	2 1/2" (65mm)	1-3	18-21	35-40 3 oz. (85 g)
Cauliflower, Trimmed 1 1/2-2" (38-50 mm)	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	12-16	30-35 3 oz. (85 g)
Corn on Cob Husked	1 doz.	2 1/2" (65mm)	1-3	10-15	12
Cabbage 1/4-1/6 of Head, Cored	5 lbs. (2.25 kg)	2 1/2" (65mm)	1-3	14-18	15-20 4 oz. (115 g)
Onions, 2" (50 mm) Diameter	6 lbs. (2.7 kg)	2 1/2" (65mm)	1-3	20-25	25-30 4 oz. (115 g)
Peas, Shelled	5 lbs. (2.25 kg)	2 1/2" (65mm)	1-3	5-6	25-30 3 oz. (85 g)
Potatoes, French Fry Cut	10 lbs. (4.5 kg)	2 1/2" (65mm)	1-3	18-21	50 3 oz. (85 g)
Potatoes, Regular Cut, 3" (75 mm)	10 lbs. (4.5 kg)	2 1/2" (65mm)	1-3	35-40	50 3 oz. (85 g)
Spinach, Cleaned Cut	3 lbs. (1.4 kg)	2 1/2" (65mm)	1-3	3-5	10-12 3 3/4 oz. (105 g)
Squash, Summer, Sliced 1" thick (25 mm)	7 lbs. (3.2 kg)	2 1/2" (65mm)	1-3	7-10	30-35 3 oz. (85 g)
Squash, Winter Peeled	9 lbs. (4 kg)	2 1/2" (65mm)	1-3	10-15	25-30 3 oz. (85 g)
Turnip, Diced	5 lbs. (2.25 kg)	2 1/2" (65mm)	1-3	28-32	20-25 4 oz. (115 g)

VEGETABLES -Canned

ITEM	Weight Per Pan	Recommended 12" x 20" (1/1) Perforated Pan	Number of Pans	Timer Settings in Minutes	Approx. Number Cooked Servings Per Pan
Canned Vegetables	7 lbs. (3.2 kg)	2 1/2" (65mm)	1-3	5-10	25-30 3oz. (85 g)

3. OPERATION (cont'd.)

PRESSURELESS STEAM COOKING TIMER SETTINGS AND PORTIONS (continued)

MEAT—POULTRY—FISH

ITEM	Approx. Frozen Weight Per Pan	Recommended 12" x 20" (1/1) Perforated Pan	Number of Pans	Timer Settings in Minutes	Approx. Number Cooked Servings Per Pan
Chicken					15-20 2 oz.
Cut up	8 lbs (3.6 kg)	2 1/2" (65mm)	1-3	20-30	Protein (55 g)
Chicken, 4 lbs.					25-30 2 oz.
Whole	3 each	4" (100 mm)	1-3	45-50	Protein (55 g)
Fowl, 5 lbs. or more					20-25 2 oz.
Whole	2 each	4" (100 mm)	1-3	50-60	Protein (55 g)
Fish, Fillets	3 lbs (1.4 kg)	2 1/2" (65mm)	1-3	10-15	12-15 2 oz. (55 g)
Frankforts	5 lbs (2.3 kg)	2 1/2" (65mm)	1-3	3-5	35-40 2 oz. (55 g)
Hamburgers					20-25 2 oz.
3 oz. (85 g)	5 lbs (2.3 kg)	2 1/2" (65mm)	1-3	18-22	Protein (55 g)
Meatballs					20-25 2 oz.
1 oz. (30 g), size*	6 lbs (2.7 kg)	2 1/2" (65mm)	1-3	20-25	Protein (55 g)
Meatloaf*	15 lbs (6.8 kg)	2 1/2" (65mm)	1-3	40-50	50-60 2 oz.
					Protein (55 g)
Pork Chops, 4 oz.					24 2 oz.
Loin Bone (115 g)	6 lbs (2.7 kg)	2 1/2" (65mm)	1-3	25-30	Protein (55 g)
Sausage					
1 1/2 oz. (45 g)	6 lbs (2.7 kg)	2 1/2" (65mm)	1-3	18-21	18-20 2oz. (55 g)
Turkey					50-60 2 oz.
On Carcass	20-22 lbs (9-10 kg)	2 1/2" (65mm)	1	2-2 1/2 hrs.	Protein (55 g)
Turkey					55-65 2 oz.
Off Carcass	10-12 lbs (4.5-5 kg)	2 1/2" (65mm)	1-3	1-1 1/4hrs.	Protein (55 g)

*Raw weight for Meatballs and Meatloaf includes hamburger and extenders and yields 2 oz. (55 g) protein plus extenders or 3 oz. (85 g) total portion.

MISCELLANEOUS

ITEM	Weight Per Pan	Recommended 12" x 20" (1/1) Perforated Pan	Number of Pans	Timer Settings in Minutes	Approx. Number Cooked Servings Per Pan
Eggs					36
In Shell	3 dozen	2 1/2" (65mm)	1-3	9-11	1 egg each
Eggs					48
Out of Shell	4 dozen	2 1/2" (65mm)	1-3	6-8	1 egg each
Rice —					
Bulletin 16					
gives					
direction	4 lbs. (1.8 kg)	2 1/2" (65mm)	1-2	18-22	60-65 3oz. (85 g)
Spaghetti					
Bulletin 13					
gives					
direction	3 lbs. (1.4 kg)	4" (100mm)	1-2	18-22	40-45 4oz. (115 g)

4. TROUBLESHOOTING

4.1 GENERAL

The information in this section is intended to assist both the operator and service personnel in locating the general source of problems that may occur with the cooker. Before following any of the procedures given in this section, the operator should be thoroughly familiar with the operating instructions and the function of all controls that are described in Section 3. If the problem cannot be readily corrected, the operator should contact the nearest Market Forge service agency for assistance.

4.2 TROUBLESHOOTING GUIDE

A troubleshooting guide for use by service personnel is given in Table 4-1.

4.3 ELECTRICAL TROUBLESHOOTING PROCEDURES

Before performing the troubleshooting procedures in this section, the serviceman must be familiar with the function of all controls as described in Section 3.

The electrical troubleshooting procedures that follow require access to components and terminals of the electrical control panel shown in Figure 7-3. Electrical controls are reached by removing screws that fasten the control panel to the frame. The panel may be pulled forward for testing while interconnected to the cooker circuits or disconnected at the pin connection for complete removal and repair.

TABLE 4-1
GENERAL TROUBLE-SHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
1. POWER LIGHT DOES NOT COME ON WHEN POWER SWITCH IS PRESSED INTO THE ON POSITION.	a. No 120V power to unit. b. Faulty POWER switch.	a. Be sure 120V power supply is on. b. Check/replace POWER switch (P/n 08-6549)
2. WATER ENTERS THE STEAM GENERATOR VERY SLOWLY.	a. Dirty strainer screen in the water fill solenoid valve. b. Dirt or lime accumulation on seat of water fill solenoid valve. c. Lower water pressure.	a. Clean/replace strainer screen. b. Clean valve seat. c. Check inlet pressure (25–50 psi).
3. STEAM GENERATOR WILL NOT FILL.	a. Faulty generator fill solenoid valve. b. Faulty generator drain solenoid valve. c. Lime build-up on probe.	a. If 120V is verified at the fill solenoid coil (see Fig. ____), but the valve fails to open, replace the valve (P/n 08-6498). b. If 120V is verified at the drain solenoid coil (see Fig. 7.4), but the valve fails to close, replace valve (P/n 08-5021). c. Clean or replace probe (P/n 08-6337).
4. READY LIGHT WILL NOT COME ON.	a. Faulty 195°F generator thermostat. b. Lime build-up on probe.	a. Check/replace thermostat (P/n 08-6449). b. Clean or replace probe (P/n 08-6337).

4. TROUBLESHOOTING (cont'd.)

TABLE 4-1 (cont'd.)

PROBLEM	PROBABLE CAUSE	REMEDY
5. GENERATOR WILL NOT CREATE STEAM.	<ul style="list-style-type: none"> a. 120V power supply is not connected or turned on. b. Cooking compartment door is ajar. c. Cooking compartment door is out of alignment. d. Faulty door magnet or magnetic reed switch. e. Lime build-up on probe. f. Faulty steam relay or contactor. g. Faulty control panel TIMER. h. Faulty MODE selector switch. i. Wiring short. 	<ul style="list-style-type: none"> a. Check to be sure 120V power is connected and on. b. Check to be sure that the cooking compartment door is closed and latched. c. Check to be sure cooking compartment door is properly aligned. d. Check magnet (P/n 08-5027) and reed switch (P/n 08-6308). Replace if needed. e. Clean or replace probe (P/n 08-6337). f. Check/replace steam relay or contactor if necessary (P/n 08-6472/10-5944). g. Check/replace control panel TIMER if necessary (Mechanical P/n 08-6464; Digital P/n 08-6429). h. Check/replace MODE SELECT switch if necessary (P/n 08-6550). i. Check wiring at terminals.
6. GENERATOR CONTINUES TO CREATE STEAM WHEN THE COOKING COMPARTMENT DOOR IS OPENED.	<ul style="list-style-type: none"> a. Faulty magnet reed switch (contacts failed closed). b. Wiring short. 	<ul style="list-style-type: none"> a. Check magnetic reed switch. Replace if necessary (P/n 08-6308). b. Check wiring at terminals.
7. GENERATOR DOES NOT DRAIN WHEN THE POWER SWITCH IS PRESSED INTO THE OFF POSITION.	<ul style="list-style-type: none"> a. Clogged or kinked generator drain line. b. Clogged generator drain hold. c. Faulty generator solenoid drain valve. 	<ul style="list-style-type: none"> a. Check to be sure that the generator drain line is not kinked and is free of debris. b. Check to be sure the generator drain hole is free of debris. c. Rebuild or replace generator solenoid drain valve (P/n 08-5021).
8. CLEAN GENERATOR LIGHT STAYS ON AFTER IT HAS BEEN CLEANED (DELIMED) AND RINSED.	<ul style="list-style-type: none"> a. Faulty or incorrectly set CLEAN GENERATOR thermostat. b. Faulty CLEAN latching relay. c. Wiring short. d. Faulty RESET switch. 	<ul style="list-style-type: none"> a. Depress RESET button on front panel. b. Check/replace if necessary (P/n 08-6474). c. Check wiring at terminals. d. Check/replace if necessary (P/n 08-6553).
9. UNIT FAILS TO HOLD.	<ul style="list-style-type: none"> a. Faulty hold thermostat. b. Faulty hold switch. c. Faulty timer. 	<ul style="list-style-type: none"> a. Replace (P/n 08-7521). b. Replace (P/n 08-6550). c. Check/replace control panel TIMER if necessary (Mechanical P/n 08-6464; Digital P/n 08-6429).

4. TROUBLESHOOTING (cont'd.)

TABLE 4-1 (cont'd.)

PROBLEM	PROBABLE CAUSE	REMEDY
10. STEAM ENTERS COMPARTMENT CONTINUOUSLY. TIMER DIAL NOT TURNING.	<ul style="list-style-type: none"> a. Constant steam position. b. Faulty thermostatic switch. c. Faulty timer motor. d. Faulty wiring. 	<ul style="list-style-type: none"> a. Move knob to timing location. b. Replace switch. See Subsection 5.4.8. c. Replace timer. See Subsection 5.4.4. d. Inspect condition of wire and tightness of all connections. Correct as needed.
11. STEAM CONTINUES TO FLOW INTO COMPARTMENT AND/OR BUZZER FAILS TO SOUND AT END OF TIMER SETTING.	<ul style="list-style-type: none"> a. Timer contacts faulty. b. Buzzer faulty. c. Faulty wiring. 	<ul style="list-style-type: none"> a. Replace timer. See Subsection 5.4.4. b. Replace buzzer. See Subsection 5.4.9. c. Inspect condition of wire and tightness of all connections. Correct as needed.
12. BURNERS WILL NOT IGNITE.	<ul style="list-style-type: none"> a. Manual gas shut-off valve is not open. b. Main POWER switch in OFF position. c. No water in boiler. d. Electricity off. e. Faulty hot surface igniter. f. Faulty ignition module. g. Faulty gas valve. h. Faulty transformer. 	<ul style="list-style-type: none"> a. Open. b. Turn to ON position. c. Check to be sure main power switch is on. Check to be sure main water supply is on. d. Turn on 110V electrical supply. e. Check and replace. f. Check and replace. g. Check and replace. h. Check and replace.
13. COLD WATER CONDENSER DOES NOT FUNCTION.	<ul style="list-style-type: none"> a. Main water line shut off. b. Thermostat out of adjustment or defective. c. Loose coil nut. d. No continuity in solenoid coil. 	<ul style="list-style-type: none"> a. Turn on. b. Readjust for proper operation or replace if defective. c. Tighten coil nut. d. Check coil for continuity. If open, replace.
14. BOILER OVERFILLS WITH WATER.	Probes dirty.	Clean probes.
15. DRAIN WATER TEMPERATURE TOO HIGH.	<ul style="list-style-type: none"> a. Faulty 130°F thermostat on the condenser tank. b. Faulty tempering tank fill/cool solenoid valve. c. Faulty wiring. 	<ul style="list-style-type: none"> a. Check 130°F thermostat. Replace if necessary. b. If 120V is verified at the solenoid cell, but the valve fails to open, replace solenoid. c. Check wiring.

4.3.1 Incoming Power

Before troubleshooting any of the electrical parts or assemblies, verify that power is being supplied to the cooker. Incoming power is connected at the boiler (or direct-connected steam) control box located in the base

cabinet. With power connected to the cooker, an AC volt-meter is used to measure 120 volts across L1 and L2. If 120 volts is present, and the cooker will not operate, the fault lies within the electrical circuits of the cooker.

4. TROUBLESHOOTING (cont'd.)

TABLE 4-2
ELECTRICAL FAULT ISOLATION GUIDE

FAILURE	FAULT LOCATION
1. Will not operate in either CONSTANT STEAM or 60-MINUTE TIMER positions.	a. Incoming power b. Timer c. Door interlock switch d. Wiring
2. Operating in CONSTANT STEAM position but not in 60-MINUTE TIMER position.	a. 60-minute timer b. Wiring
3. Operates in 60-MINUTE TIMER position but not in CONSTANT STEAM position.	a. Timer b. Wiring
4. Steam solenoid valve fails to open with indicator light on.	a. Solenoid valve coil b. Wiring
5. Indicator light off with steam solenoid valve open.	a. Indicator light b. Wiring
6. With indicator light on and steam solenoid valve open, timer dial fails to turn.	a. Compartment thermostatic switch b. Constant steam position c. Timer motor d. Wiring
7. Buzzer fails to sound at end of 60-MINUTE TIMER mode.	a. 60-minute timer contacts b. Buzzer c. Wiring
8. Steam flows continuously from boiler drain line.	a. Thermostatic switch b. Cold water solenoid valve c. Wiring

4.3.2 Electrical Inspection

The first step in any electrical troubleshooting procedure is a thorough physical inspection of all wiring connections. To access electrical components, remove the control panel as explained in Subsection 6.3.4.

WARNING

Before removing control panel or checking connections and wiring, be sure that the circuit breaker for incoming power is OFF. When power is supplied, all exposed terminals of the control panel carry 120 volts.

Check all wiring connections by hand to assure that both ends of all connection points are tightly secured. Use a screwdriver to tighten connection points. If necessary, visually inspect all quick-disconnect terminals for evidence of corrosion. Terminals in this condition should be separated, cleaned with emery cloth until shiny, and tightly reconnected.

4.3.3 60-Minute Timer

4.3.3.1 Timer Contacts

Defective timer contacts will result in failure of either cooker compartment to operate. When this occurs, re-

4. TROUBLESHOOTING (cont'd.)

move the control panel (see Subsection 6.3.4), and proceed as follows:

1. Turn off power to the cooker at external circuit breaker.
2. Disconnect all five wires from timer terminals (see Figure 5-1).
3. Connect an ohmmeter between terminals 1 and 3.
4. Rotate timer dial beyond the "0-Minute" point (any setting) to obtain a reading of zero ohms on the ohmmeter. If zero ohm reading cannot be obtained, timer contacts are defective and the timer must be replaced.
5. Move ohmmeter leads to terminals 1 and 4.
6. Rotate timer dial to "0-Minute" position (an audible click indicates correct position). If zero ohm reading cannot be obtained, the timer is defective and must be replaced.
7. Remove ohmmeter and replace all five leads on timer terminals as shown in Figure 5-1.

4.3.3.2 Timer Motor

A defective timer motor will cause continuous operation in the TIME mode, with the timer dial failing to return to the "0-Minute" position. Since thermostatic switch failure can cause the same symptom, fault must first be isolated to the timer by testing the thermostat (see Subsection 5.4.8).

To confirm timer motor condition, proceed as follows:

1. Carefully check motor wire leads and tighten loose connections.

WARNING

Use care while working with control panel. Terminals carry 120 volts.

2. Turn on power to the cooker.
3. Set timer dial (any setting beyond "0-Minute"). If operation is correct, the motor will turn the dial toward "0-Minute." If the motor fails to operate, it is defective and the entire timer must be replaced.
4. Shut off power to the cooker.

4.3.4 Door Interlock Switch

Malfunction of the cooker door interlock switch prevents timer indicator lights from turning on and steam solenoid from opening when the timer dial is set. If steam

does not enter the compartment and the indicator light fails to turn on with the door latch securely engaged, the fault may be in the door interlock switch. Proceed as follows:

1. Turn off power to the cooker.
2. Disconnect wires to the door switch terminals (see Figure 5-1).
3. Connect an ohmmeter between the terminals of the switch.
4. Actuate the switch by closing the cooking compartment door. If a zero reading cannot be obtained, the switch is defective and must be replaced.
5. Remove the ohmmeter and replace the leads on switch terminals (see Figure 5-1).

4.3.5 Indicator Lights

If the cooker compartment functions correctly, with the single exception that the indicator light fails to light during operation, the fault is a defective indicator light. A "burned out" or defective light is verified by using an AC voltmeter at the leads, with input power on the selector switch in the correct position for that timer, the timer set, and the door latches closed. If 120 volts is present, the fault is in the indicator light and requires replacement. If 120 volts is not present, the fault is in the wiring or control components (selector switch, timer, or door switch).

4.3.6 Cooking Compartment Thermostatic Switch

A thermostatic switch included in the circuit for the timer motor delays timer operation until steam flowing into the compartment satisfies the temperature-actuated switch device. If a timer motor fails to operate within about one minute after the indicator light comes on (with cooker compartment empty), the cause may be a defective thermostatic switch. To test the switch, proceed as follows:

1. Disconnect the two wires connected to the thermostatic switch terminals.
2. Connect an ohmmeter between the two terminals of the switch.
3. Place the cooker into operation and observe ohmmeter dial. Within one minute of operation, the switch contacts close automatically to register a

4. TROUBLESHOOTING (cont'd.)

zero ohm reading on the dial. If a zero ohm reading is not obtained, the switch is defective.

4. Shut off cooker, disconnect ohmmeter leads, and replace wires on switch terminals.

4.3.7 Buzzer

If the buzzer does not sound at the termination of the operator-selected timer setting (timer dial returned to "0-Minute" position), the fault may be a defective buzzer. Buzzer operation is verified using an AC voltmeter at buzzer coil connections with input power on and selector switch and coinciding timer dial set at the "0-Minute" position. If voltage is 120 volts, the fault is in the buzzer, which must be replaced. If 120 volts is not present, the fault is in the wiring or control components (timer or selector switch).

4.3.8 Cold Water Condenser Circuit

If during cooker operation steam exits from the drain line opening (located in lower boiler compartment) and the condensing system fails to operate, as evidenced by repeated discharge of water from the drain line, the condensing circuit is malfunctioning. The failure can be caused by a defective condenser thermostat or cold water solenoid coil, or by wiring failure. To test condenser thermostat, refer to Subsection 5.4.8.

If the condenser thermostat functions correctly, but either of the cold water solenoid valves fails to operate, the cause might be a faulty valve coil. A defective coil is found using an AC voltmeter to check the voltage at the coil wire terminals with the cooker compartment in operation. If voltage of 120 volts is present and the valve fails to open, the fault is in the valve coil. Defective valve coils are separately replaceable.

4.3.9 Wiring

All of the electrical components of the cooker (timers, indicator lights, etc.) are connected to each other by wiring shown in Figure 5-1. If all of the electrical components are operating correctly (and the incoming power has been checked), but the cooker fails to operate, the fault lies in the wiring.

Figure 5-1 is a diagram that shows all terminals and interconnections within the electrical circuits. All numbered terminals are identified and all leads number-coded

as shown. Connections can be easily removed. Figure 5-2 shows the same information schematically and is an aid in isolating circuits for testing.

Using an ohmmeter, wiring continuity between the connections shown on the wiring diagram (Figure 5-1) is readily verified. This is best done in stages, removing only those wires required for each continuity check. As each lead is replaced, it should be checked for evidence of corrosion, and cleaned if necessary. All leads must be tightly attached so as to provide a good electrical connection.

4.4 WATER LEVEL CONTROL BOARD

The Dual-Function Water Level Controller is two controls on one board. One controller maintains correct water level in the generator, while the other is a low-water safety cutoff.

The following troubleshooting procedure will only determine if the Water Level Control Board is working properly. It will *not* determine why the board has failed.

WARNING:
THIS PROCEDURE EXPOSES YOU TO A SHOCK HAZARD AND MUST BE PERFORMED ONLY BY A QUALIFIED SERVICE TECHNICIAN.

WARNING:
IMPROPERLY CONNECTED OR MALFUNCTIONING WATER LEVEL CONTROLLER MAY CAUSE DAMAGE TO THE STEAM GENERATOR DUE TO LOW WATER, OR CREATE A SCALDING HAZARD TO THE OPERATOR DUE TO A HOT WATER OVERFLOW CONDITION.

Tools Required: A digital or analog volt meter capable of reading 120 volts AC and a jumper wire with alligator clips.

Procedure:

1. Turn off all power to the unit.
2. Remove control panel or right-side access panel. Refer to Figure 6-1 for relay locations and terminal identification.
3. Remove the wires from the terminal connectors "G," "H," and "LLCO."

4. TROUBLESHOOTING (cont'd.)

WARNING: When you turn the power on, there are terminals that carry 120 volts. Protect the ends of these disconnected wires to prevent shorting to hot leads.

4. Turn power ON. Using the voltmeter, check that the power being supplied to terminals L1 and L2 is 120 volts, plus 10%, minus 15%.

4.4.1 Testing the Water Fill Relay

1. When the power is turned on, the LED (light-emitting diode) next to the water fill relay should be ON. Using the voltmeter, touching the probes to terminals L2 and N.O. next to the water fill relay should show 120 volts. Touching the probes to L2 and N.C. should show no voltage.
2. Connect the jumper to terminals "G" and "H." After a delay of 4–5 seconds, the relay should switch and the LED will go OFF. Using the voltmeter, touching the probes to terminals L2 and N.O. of the water fill relay should show no voltage. Touching the probes to L2 and N.C. should show 120 volts.

3. Disconnect the jumper.

4.4.2 Testing the Low Water Relay

1. With the power ON, the LED next to the Low Water Relay should be OFF. Using the voltmeter, touching the probes to the L2 and N.O. terminals next to this relay should show no voltage. Touching the probes to terminals L2 and N.C. should show 120 volts.
2. Connect the jumper to terminals "G" and "LLCO." The LED next to the Low Water Relay should turn ON immediately.
3. Touch the voltmeter probes to terminal L2 and N.O. next to the low water relay; there should be 120 volts. Touch the probes to terminals L2 and N.C.; there should be no voltage.
4. Remove the jumper and turn OFF the power. Reconnect the disconnected wires—wire to terminal "G"; wire to terminal "LLCO"; and wire to terminal "N.O." of the water fill relay.

4. TROUBLESHOOTING (cont'd.)

ST-6 TGG (2) COMPARTMENT

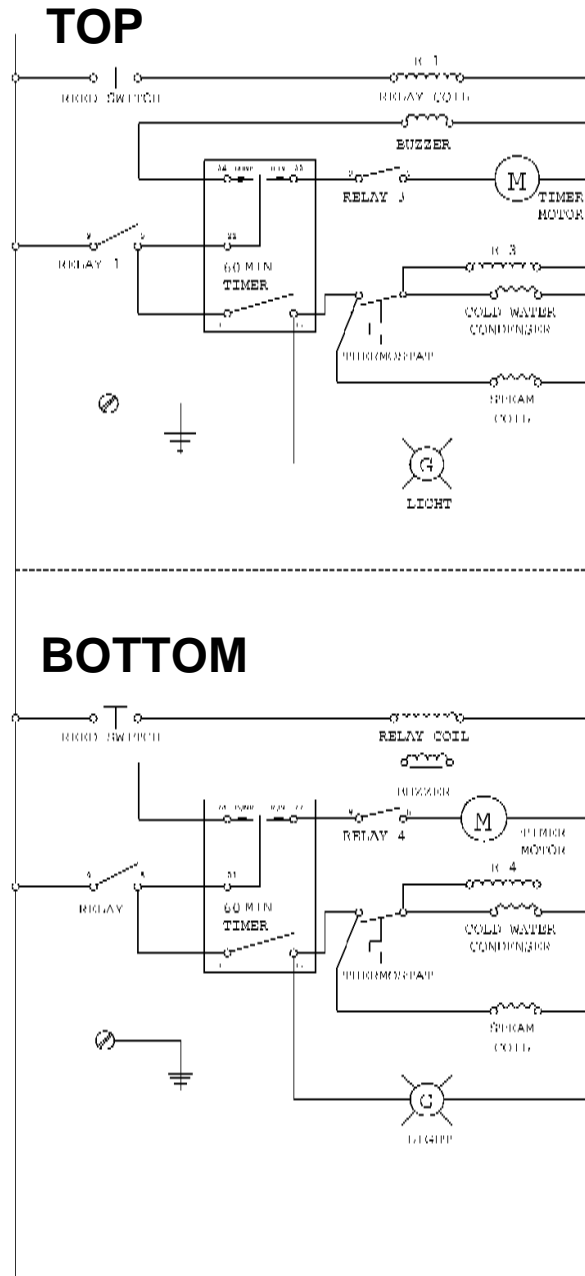


Figure 4-2. Schematic Diagram, Model ST-6 TGG

5. MAINTENANCE

5.1 GENERAL

This section contains both preventive and corrective maintenance information. Preventive maintenance may be performed by maintenance personnel at the establishment in which the cooker is installed. It is recommended that user personnel never attempt to make repairs or replacements to the equipment without the assistance of authorized service. Assistance in service methods or a current Directory of Authorized Agencies may be obtained from Market Forge (see Subsection 1.3).

5.2 PREVENTIVE MAINTENANCE

A good preventive maintenance program begins with the daily cleaning procedure described in Subsection 3.3. Additional preventive maintenance operations are presented in this section. In establishments that employ full-time maintenance personnel, the tasks described can be assigned to them. For other installations, tasks requiring mechanical or electrical experience should be performed by an authorized service agency.

The following paragraphs set forth minimum preventive maintenance procedures that must be completed periodically to assure continued trouble-free operation of the cooker.

CAUTION

Under no circumstances should hardware (or parts) be replaced with a different length, size, or type other than as specified in the parts list. The hardware used in the cooker has been selected or designed specifically for its application, and the use of other hardware may damage the equipment and will void any warranty.

5.2.1 Cooking Compartment Cleaning

A daily cleaning of the cooking compartments and pan supports is required. See Subsection 3.3 for details.

5.3 REPAIR AND REPLACEMENT

Section 6 of this manual contains a listing of all replaceable parts and associated exploded views of the steamers. In most cases, disassembly procedures will be obvious from the exploded views. Instructions follow for procedures that are not readily apparent.

5.3.1 Door Latch Tension Adjustment

CAUTION
SHUT OFF MAIN ELECTRICAL
POWER TO UNIT.

Procedure:

1. Open the cooking compartment door.
2. Remove the control panel by removing the eight mounting screws and disconnecting the wire plug and restraining wire.
3. Tighten both nuts down until the springs are fully compressed.
4. Back each nut off $\frac{1}{2}$ turn.
5. Remount the control panel, reconnecting wire plug and restraining wire.

5.3.2 Door Handle Tension Adjustment

Procedure:

1. Open the cooking compartment door.
2. Remove the six screws and washers from the top edge and bottom edge of the door.
3. Remove the inner door gasket mounting plate assembly from the outer door. Do not disassemble these three components—remove them as an assembly.
4. Tighten both nuts down until the springs on the outer door are fully compressed.
5. Back each nut off $\frac{1}{2}$ turn.
6. Remount the inner door gasket mounting plate assembly by assembling the six screws and washers.

5. MAINTENANCE (cont'd.)

5.3.3 Door Gasket Replacement

The cooking compartment door gaskets are made of a silicone-type rubber material that is very durable but subject to wear during normal operation. Should the gasket leak, readjust the door gasket to the unit or replace it.

Procedure—Replace Gasket:

1. Open the cooking compartment door.
2. Remove the six screws on the outside of the door, and remove the inner door assembly.
2. Remove the eight nuts from the door gasket mounting plate on the inside of the inner door assembly.
3. Remove the door gasket mounting plate and the door gasket.
4. Install the new door gasket (see Figure 7-2 for part number) to the mounting plate.
5. Reassemble the mounting plate with gasket to the inside of the inner door assembly using the eight nuts.
6. Reassemble the inner door assembly using the six screws on the outside of the door.

NOTE

Remember that the lip on the door gasket mounting plate must fit into the channel on the inside edge of the gasket to insure a proper seal.

Procedure—To Adjust Gasket to Unit:

To prevent steam leaks around the door, adjust the gasket tension to cavity. Adjust the gasket by loosening the six screws on top and bottom of door, move inner door plate in or out, left side or right side, and tighten the six screws.

5.3.4 Exterior Panel Removal

WARNING

To prevent hazard in servicing the cooker, be certain that the steam supply boiler is shut down, the cold water shut-off valve is closed, and the electrical disconnect circuit breaker for the cooker/boiler unit is off before removing side panels.

Access to all internal plumbing and electrical assemblies is from the bottom front and the right front. The bottom front panel is removed by removing the bottom screw. The panel is shown as item #25 in Figure 6-1. The electric control panel, shown in Figure 6-3, may also be removed as a unit by removing screws and pulling the panel forward. Removal of the control panel is completed by unplugging interconnecting wiring at the pin housing.

5.3.5 Water Solenoid Valve Replacement

Replacements for the $\frac{1}{4}$ -inch water valves are available as complete units from Market Forge Authorized Service Agencies. It is necessary to replace an entire steam valve when the coil is faulty or the diaphragm ruptures. Replacement coils are available for the water valves. The valves are accessed as explained in Subsection 5.3.4.

6. ILLUSTRATED PARTS LIST

6.1 GENERAL

This section contains a complete listing of all replaceable parts of the ST-6 TGG and ST-10 TGG. For the purpose of parts identification, the unit is broken down into functional assemblies, and each assembly is shown in an exploded view that is keyed to the accompanying parts list. Each parts list contains the figure index number, the Market Forge part number, and an abbreviated description.

6.2 ORDERING INFORMATION

Orders for repair parts should be directed to the nearest authorized parts distributor. For a current Market Forge Authorized Parts Distributor List, contact:

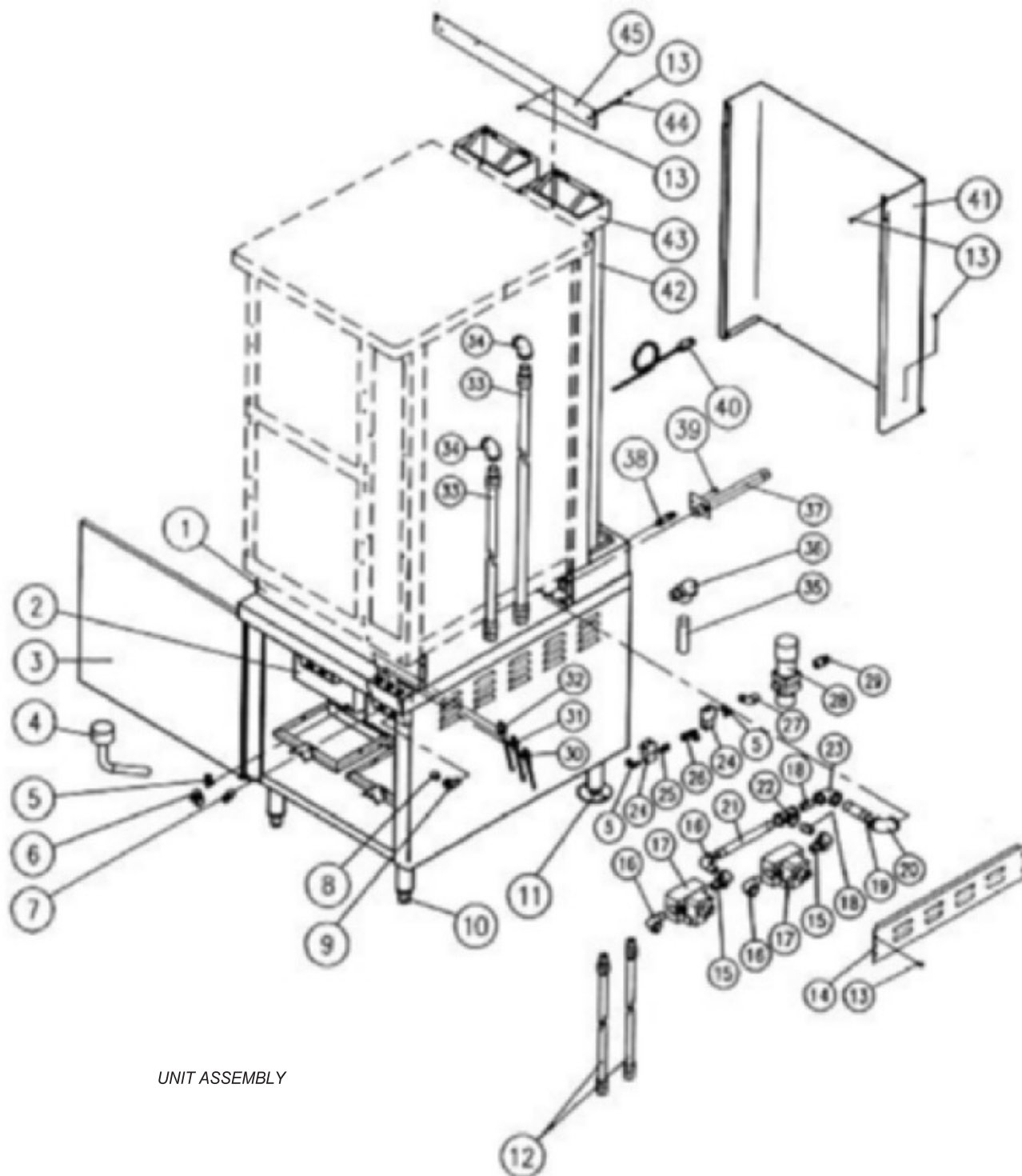
Product Service Department
Market Forge
35 Garvey Street
Everett, Massachusetts 02149
Telephone: (617) 387-4100

All orders should contain the Market forge part number(s), the part description(s), and the model and serial number of the cooker for which the part or parts are ordered.

6.3 INDEX OF ILLUSTRATED PARTS LIST

PART	PAGE
Unit Assembly	6-2
Cabinet Assembly	6-4
Flex Tubing	6-6
Drain Box Break-Down	6-7
Component Break-Down	6-7
Natural Gas Burner Parts	6-8
Propane Burner Parts	6-8
Door Assembly	6-9
Boiler Assembly	6-10
Control Panel Assembly	6-12
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Main Water Line Assy	6-13
Main Burner Assembly	6-13 & 6-14
Gasline Assembly	6-14
Condensing Drain Line Assembly	6-14

6. ILLUSTRATED PARTS LIST

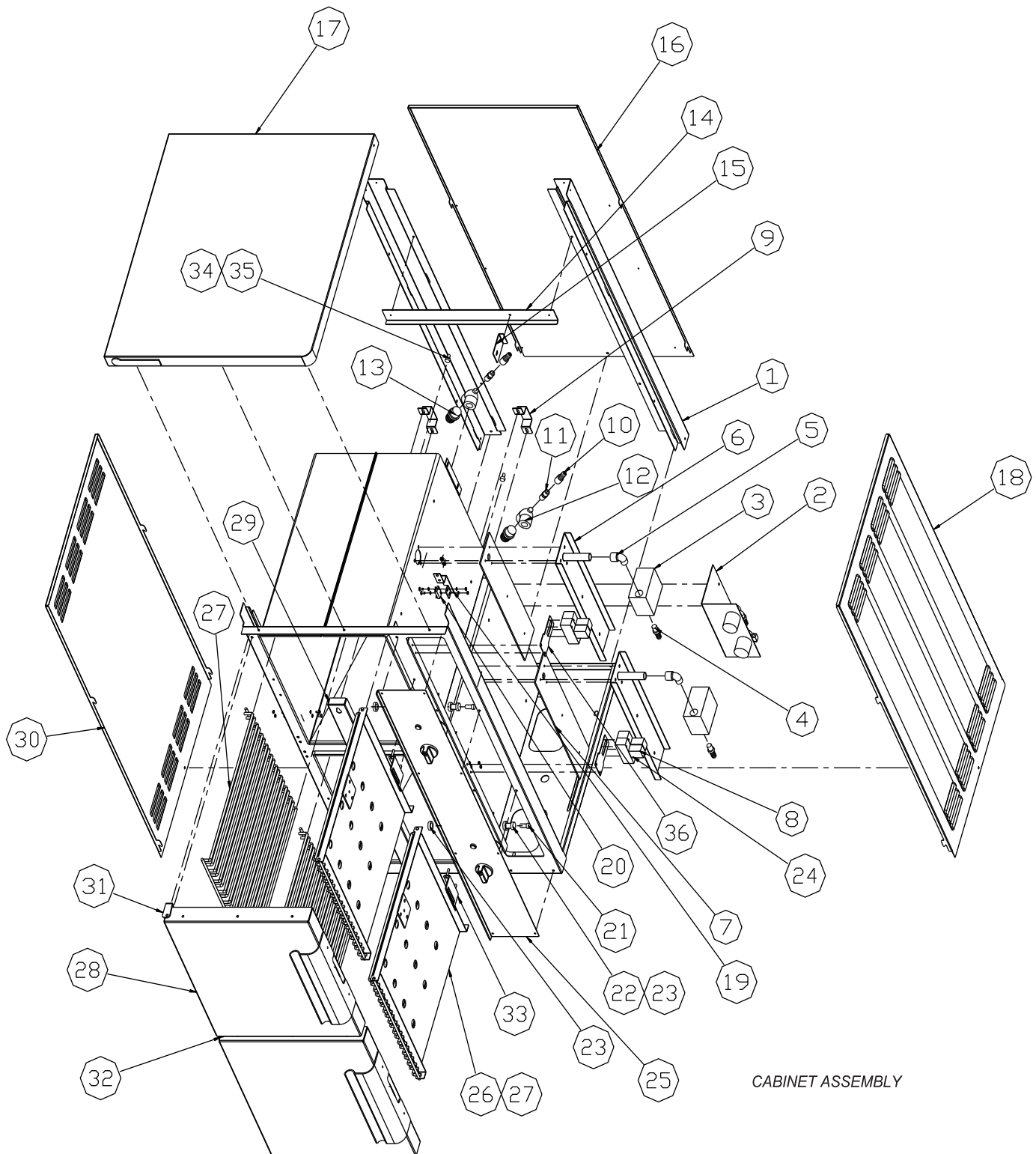


UNIT ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	ST-6-TGG	ST-12-TGG
1	97-5972	FRONT RISER PANEL	1	1
2	97-5922	GENERATOR	2	2
3	97-5964	CABINET DOOR ASSY	1	1
4	97-5957	DELIME FUNNEL	1	1
5	97-5938	ELBOW, 3/8 C x 1/8 MPT	4	4
6	97-5897	HI-LIMIT THERMOSTAT	2	2
*	97-5959	COVER, HI-LIMIT THERMOSTAT	2	2
7	97-5619	FITTING, THERMOSTAT	2	2
8	97-5930	BRASS PLUG, 3/8 MPT	2	2
9	97-5931	STREET ELBOW, BRASS, 3/8 MPT	2	2
10	97-5963	BULLET LEG ASSY, 6"	2	2
11	97-5962	FLANGED LEG, 6"	2	2
12	97-5984	GAS FLEX TUBE, 1/2" x 36"	2	2
	97-5983	GAS FLEX TUBE, 1/2" x 18"	2	2
13	97-5738	SCREW, S/S, 10-32 x 1/2"	28	28
14	97-5926	SIDE RISER PANEL	2	2
15	97-5744	UNION ELBOW, 1/2"	2	2
16	97-5856	STREET ELBOW, 1/2"	3	3
17	97-5808	COMB. GAS VALVE, NAT.	2	2
	97-5809	COMB. GAS VALVE, LP.	2	2
18	97-5854	CLOSED NIPPLE, 1/2"	2	2
19	97-5980	NIPPLE, 3/4" x 3"	1	1
20	97-5877	ELBOW, 3/4"	1	1
21	97-5979	NIPPLE, 1/2" x 7-3/4"	1	1
22	97-5982	TEE, 1/2"	1	1
23	97-5555	REDUCING ELBOW, 1/2" x 3/4"	1	1
24	97-5952	GENERATOR FILL SOLENOID	2	2
25	97-5935	CONNECTOR, 3/8 C 1/8 MPT	1	1
26	97-5940	TEE, 3/8 C x 3/8 C x 1/8 MPT	1	1
27	97-5939	ELBOW, 3/8 C x 1/2 MPT	1	1
28	97-5965	THERMOSTATIC COOLING VALVE	1	1
*	97-5961	COOLING VALVE BRACKET	1	1
29	97-5936	CONNECTOR, 3/8 C x 1/2 MPT	1	1
30	97-5943	PROBE, 3"	2	2
31	97-5942	PROBE, 2-1/2"	2	2
32	97-5941	PROBE, 2"	2	2
33		*****REFER TO FIGURE 2*****		
34	97-5928	ELBOW, BRASS, 3/4"	4	4
35	97-5968	RELIEF VALVE EXTENSION	2	2
36	97-5956	RELIEF VALVE, 5 PSI	2	2
37	97-5955	GAS SUPPLY PIPE ASSY	1	1
38	97-5944	WATER FILL FITTING, 3/8 C	2	2
39	97-5736	SCREW, 10-32 x 1/2"	2	2
40	97-5702	CORD SET	1	1
41	98-1556B	FLUE COVER	1	
	98-1556C	FLUE COVER		1
42	97-5924	FLUE	2	
	97-5925	FLUE		2
43	97-5970	FLUE TOP	2	2
44	97-5993	SCREW, 10-32 x 1/2"	2	2
45	98-1556A	FLUE DEFLECTOR	1	1

* NOT SHOWN

6. ILLUSTRATED PARTS LIST

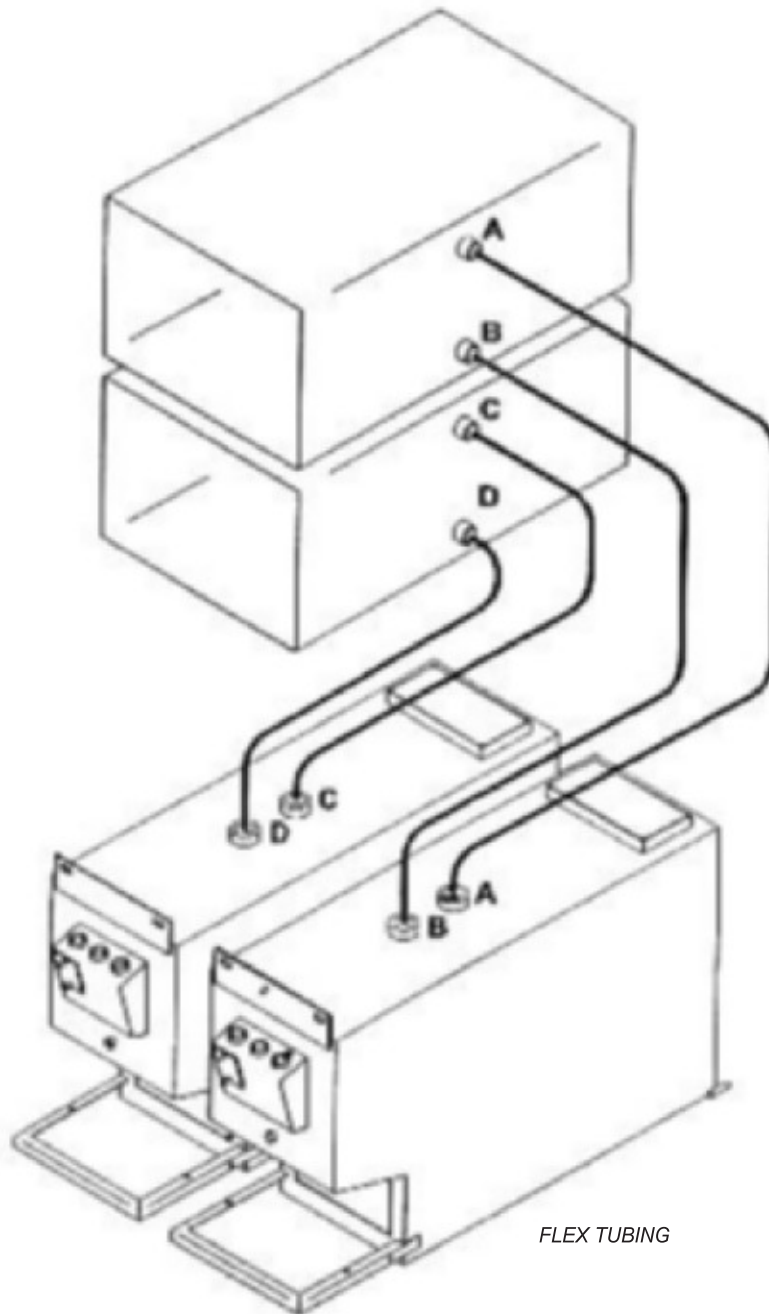


6. ILLUSTRATED PARTS LIST

CABINET ASSEMBLY

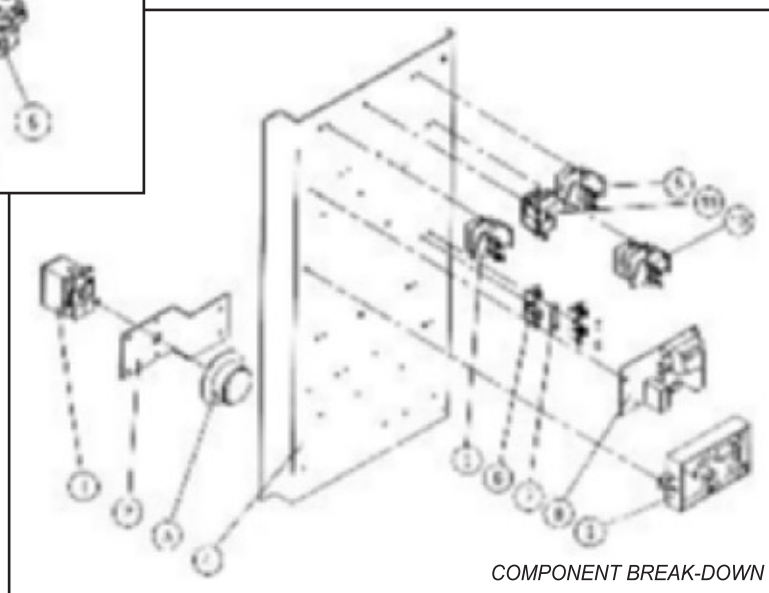
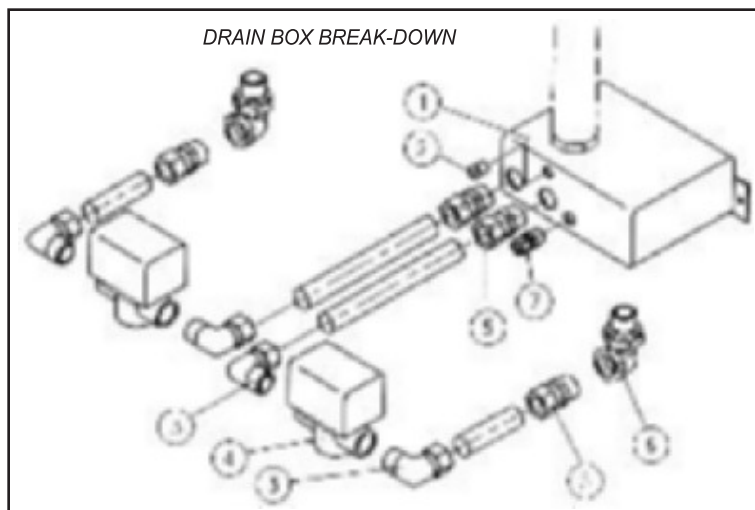
ITEM NO.	PART NO. ST-6TGG	PART NO. ST-12TGG	DESCRIPTION	QTY.
1	98-3501	91-7616	POST, REAR	2
2	REF	REF	CONDENSER ASSY.	1
3	10-5859	10-5859	INLET SOLENOID	2
4	08-4892	08-4892	BARB, 1/2" IPS X 3/8" ID TUBE	2
5	10-8823	10-8823	ELBOW, STREET, 1/2" IPS	2
6	98-3510	91-7595	INLET ADAPTER ASSY.	2
7	91-6838	91-6474	INLET GASKET	2
8	10-9174	10-9174	RELAY TUBE	2
9	91-6477	91-6477	BRACKET, LINER HOLD DOWN	2
10	08-4978	08-4978	BARB, 1/4" IPS FEMALE X 1/4" ID TUBE	2
11	08-4866	08-4866	SPRAYER NOZZLE	2
12	08-4833	08-4833	REDUCING TEE, 1" X 1" X 1/4" IPS	2
13	08-1207	08-1207	BARB, 1" IPS	2
14	91-7638	91-7638	STIFFENER, BACK	1
15	91-7639	91-7639	BRACKET, LINER TIE	1
16	98-3503	91-7493	PANEL, BACK	1
17	91-7619	91-7619	PANEL, TOP	1
18	98-3505	91-7569	PANEL, SIDE	2
19	91-7690	91-7690	BRACKET, REED SWITCH	2
20	08-6308	08-6308	REED SWITCH	2
21	10-8105	10-8105	THERMOSTAT, CONDENSER	2
22	10-3739	10-3739	REDUCER, 1/2" IPS X 3/8" IPS	2
23	10-4586	10-4586	NUT, SEALER, 1/2" IPS	4
24	10-9175	10-9175	RELAY, SOCKET	2
25	98-3511	91-6470	CONTROL PANEL ASSY.	1
26	91-7697	91-7698	BAFFLE, RACK SLIDE	2
27	91-5700	91-7699	RACK, WIRE	4
28	91-6493	91-6486	DOOR ASSY.	2
29	91-7684	91-7684	STRAINER	2
30	08-4600	08-4600	COMPRESSION SPRING	4
31	91-6475	91-6475	HINGE, TOP	2
32	916476	916476	HINGE, BOTTOM	2
33	91-6492	91-6492	LATCH, RECEIVER	2
34	91-6491	91-6491	GROMMET	2
35	08-6538	08-6538	VACUUM BREAKER	2
36	91-6940	91-6940	RELAY BRACKET	2

6. ILLUSTRATED PARTS LIST



ITEM NO.	PART NO.	DESCRIPTION	ST-6-TGG	ST-12-TGG
A	97-5988	STEAM FLEX TUBE, 30"	1	
B	97-5987	STEAM FLEX TUBE, 24"	1	
C	97-5988	STEAM FLEX TUBE, 30"	1	
D	97-5987	STEAM FLEX TUBE, 24"	1	
A	97-5989	STEAM FLEX TUBE, 42"		1
B	97-5988	STEAM FLEX TUBE, 30"		1
C	97-5988	STEAM FLEX TUBE, 30"		1
D	97-5987	STEAM FLEX TUBE, 24"		1

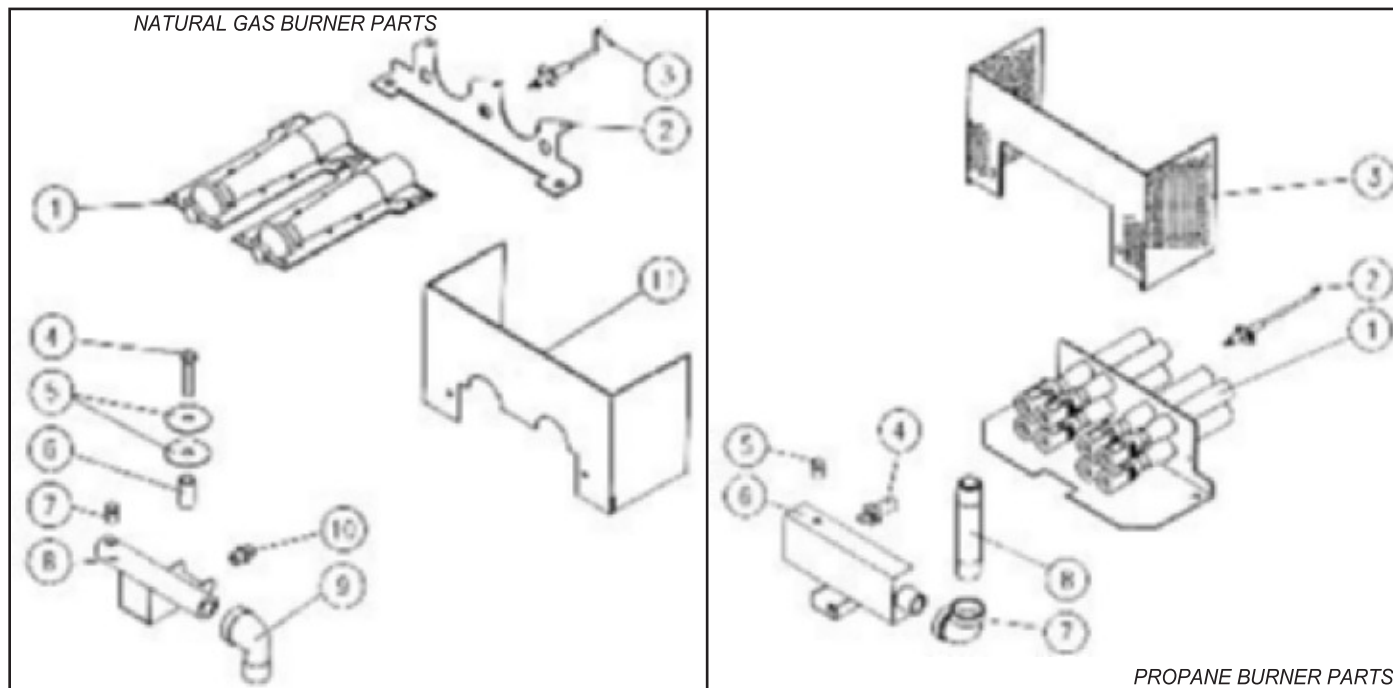
6. ILLUSTRATED PARTS LIST



ITEM NO.	PART NO.	Drain Box DESCRIPTION	ST-6-TGG	ST-12-TGG
1	97-5988	DRAIN BOX ASSY	1	1
2	97-5987	PLUG, 1/4-18 NPT	1	1
3	97-5988	ELBOW, 3/4 C x 3/4 MPT	4	4
4	97-5987	BLOW DOWN VALVE	2	2
5	97-5989	CONNECTOR, 3/4 C x 3/4 MPT	4	4
6	97-5988	UNION ELBOW, 3/4"	2	2

ITEM NO.	PART NO.	Component DESCRIPTION	ST-6-TGG	ST-12-TGG
1	97-5990	OPERATING THERMOSTAT	2	2
2	97-5975	MOUNTING BRACKET	2	2
3	97-5949	DIAL	2	2
4	97-5974	MOUNTING BRACKET	1	1
5	97-5992	RELAY, SPDT, 120V	4	4
6	97-5864	FUSE HOLDER	2	2
7	97-5986	FUSE, 2 AMP	2	2
8	97-5948	LEVEL CONTROL	2	2
9	97-5960	IGNITION MODULE	2	2
10	97-5991	RELAY, DPDT, 120V	2	2
11	97-5945	BUZZER	2	2

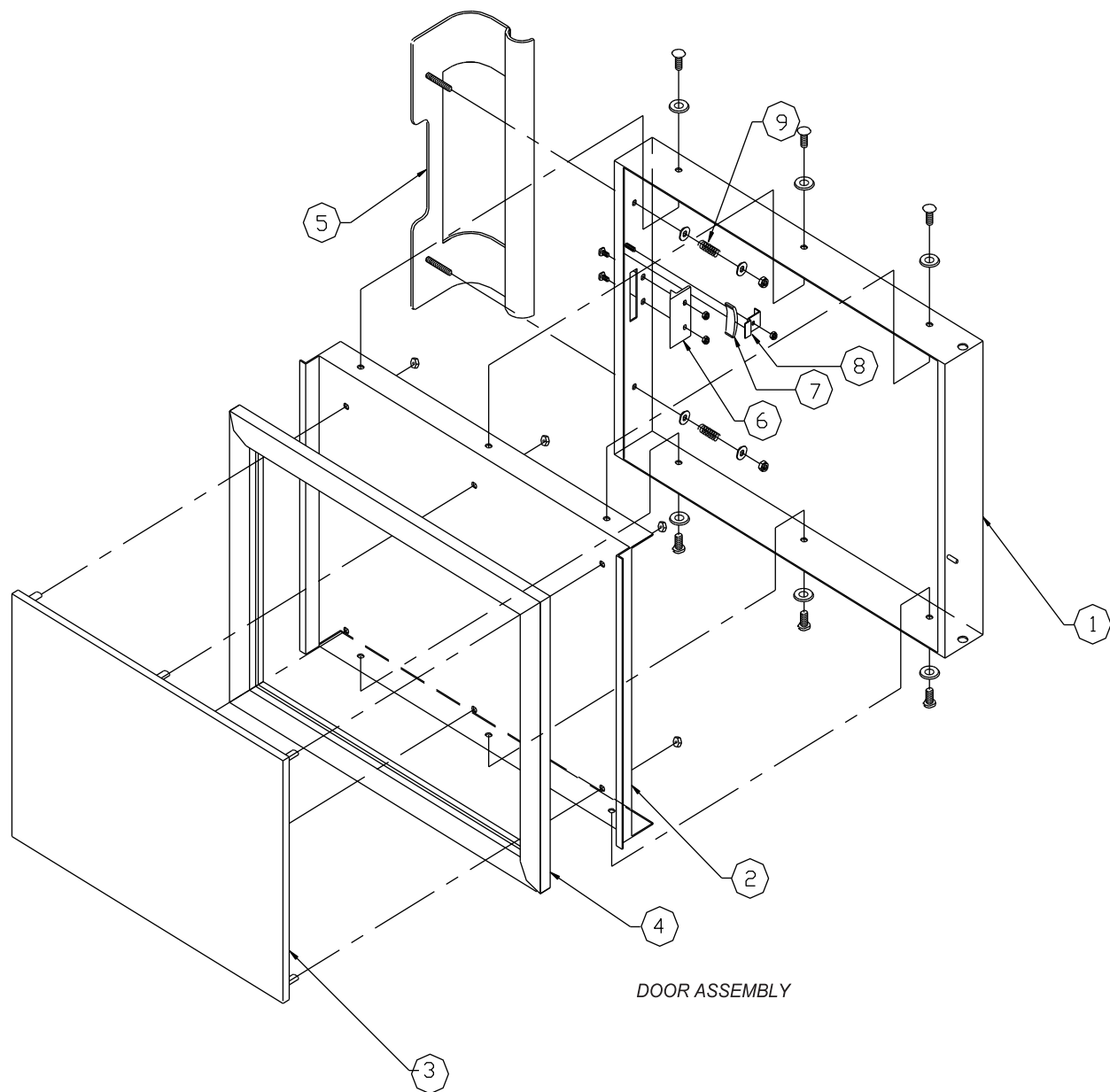
6. ILLUSTRATED PARTS LIST



ITEM NO.	PART NO.	Natural Gas DESCRIPTION	ST-6-TGG	ST-12-TGG
1	97-5954	BURNER ASSY	4	4
2	97-5923	BURNER MOUNTING BRACKET	2	2
3	97-5971	SPARK ELECTRODE	2	2
4	97-5994	HEX CAP SCREW, 1/4-20 x 1-1/2"	2	2
5	97-5927	FENDER WASHER, 1/4"	4	4
6	97-5953	BURNER SUPPORT	2	2
7	97-5929	SQUARE HEAD PIPE PLUG, 1/8" MPT	2	2
8	97-5969	MANIFOLD ASSY	2	2
9	97-5856	STREET ELBOW, 1/2"	2	2
10	97-5933	ORIFICE, DMS #37	2	
	97-5933	ORIFICE, DMS #30		2
11	97-5958	BURNER SHIELD	2	2

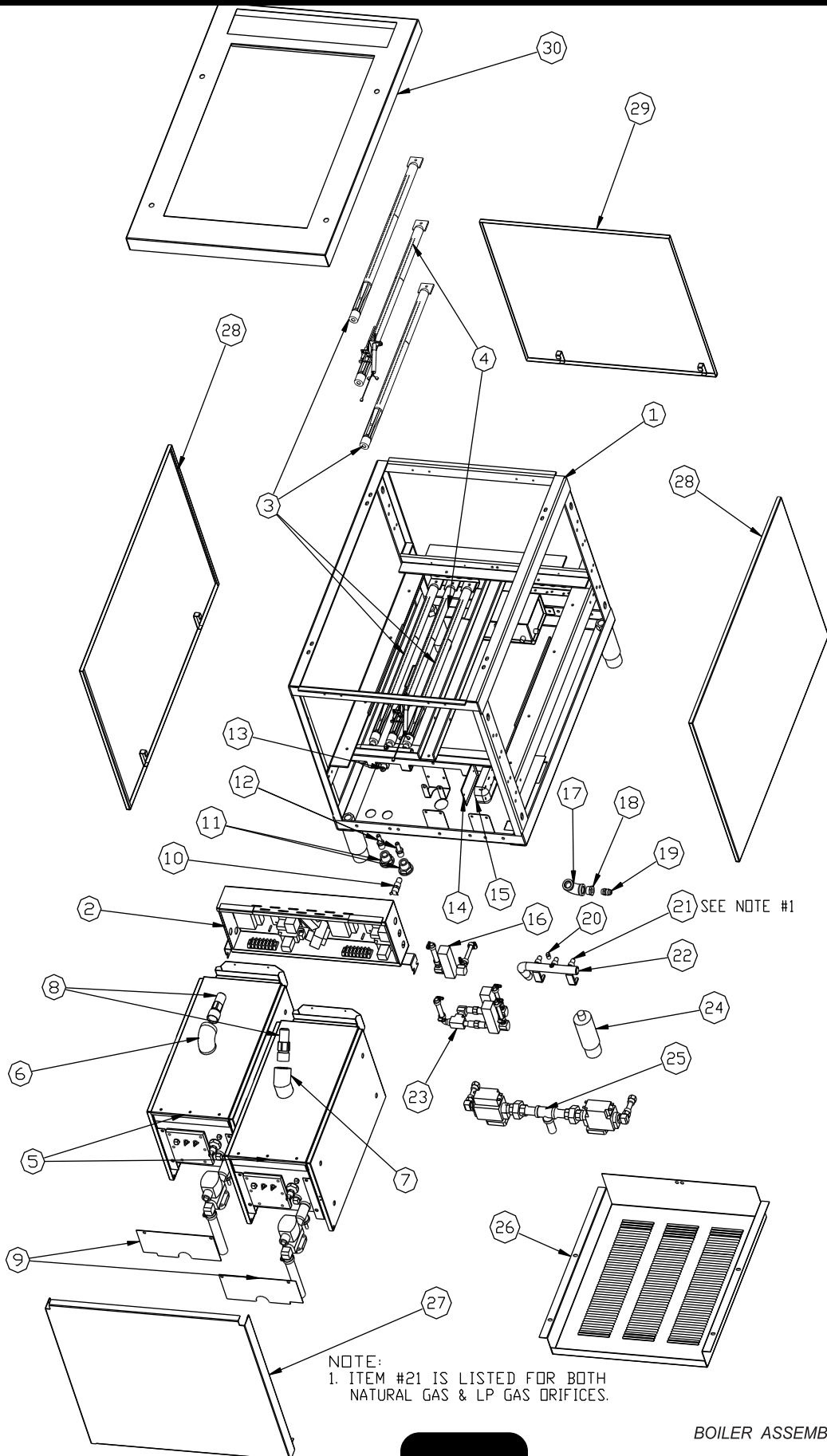
ITEM NO.	PART NO.	Propane DESCRIPTION	ST-6-TGG	ST-12-TGG
1	97-5977	BURNER ASSY (INCLUDES BRACKET)	2	2
2	97-5967	SPARK ELECTRODE	2	2
3	97-5966	BURNER SHIELD	2	2
4	97-5951	JET ORIFICE, DMS #67	16	
	97-5950	JET ORIFICE, DMS #61		16
5	97-5929	SQUARE HEAD PIPE PLUG, 1/8" MPT	2	2
6	97-5976	MANIFOLD ASSY	2	2
7	97-5981	STREET ELBOW, 1/2"	2	2
8	97-5878	NIPPLE, 1/2" x 4"	2	2

6. ILLUSTRATED PARTS LIST



ITEM NO.	PART NO. ST-6TGG	PART NO. ST-12TGG	DESCRIPTION	QTY.
1	91-5729	91-7692	OUTER DOOR	1
2	91-5766	91-7694	INNER DOOR	1
3	91-5731	91-7696	GASKET RETAINING PLATE	1
4	91-5286	91-7783	DOOR GASKET	1
5	91-5745	91-5745	DOOR HANDLE	1
6	09-1608	09-1608	STRIKER	1
7	08-5027	08-5027	MAGNET	1
8	91-5901	91-5901	MAGNET BRACKET	1
9	08-4600	08-4600	COMPRESSION SPRING	2

6. ILLUSTRATED PARTS LIST



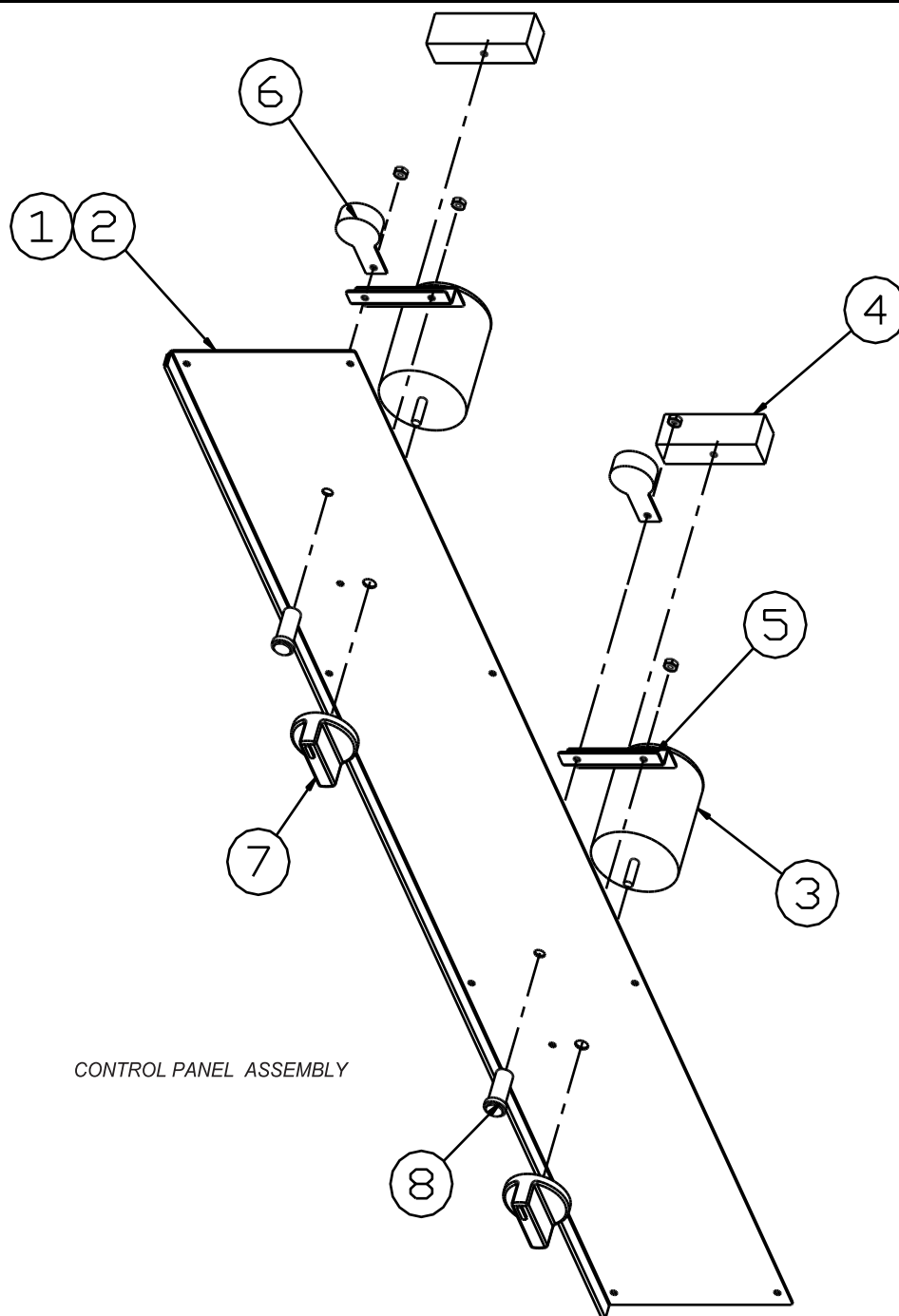
BOILER ASSEMBLY

6. ILLUSTRATED PARTS LIST

BOILER ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	98-3809	FRAME & DRAIN ASSEMBLY	1
2	98-3826	GAS CONTROL BOX ASSEMBLY- ELECTRICAL	1
3	98-0090	BURNER TUBE	4
4	98-3846	BURNER, IGNITOR, & SENSOR ASSEMBLY	2
5	98-0124	GENERATOR, BOILER ASSY	2
6	08-4942	ELBOW, 90, 1" N.P.T. STEEL	1
7	08-4988	ELBOW, 45, 1" N.P.T. STEEL	1
8	08-1207	BARB, HOSE 1" N.P.T. X 1" HOSE	2
9	98-3817	PLATE, FRONT BURNER COVER,	2
10	10-8105	THERMOSTAT, DRAIN BOX, 3/8" N.P.T, 193 F	1
11	08-4981	FITTING, BULKHEAD, 3/8" NPT, X 3/8" I.D.	2
12	98-1477	BARB, HOSE 3/8" STRAIGHT X 3-8" HOSE	2
13	08-5070	FITTING, ELBOW 90, 1/4" FLARE HOSE X 1/4 MALE NPT	1
14	10-5164	COVER, ELECTRICAL BOX	1
15	10-5163	BOX, ELECTRICAL - HANDY	1
16	98-3857	ASSY, CONDENSING DRAIN LINE	1
17	08-5053	ELBOW, 90 IRON, 1/2" NPT	2
18	10-3324	BUSHING. REDUCER, 1/2" X 1/4" NPT	2
19	08-5071	ADAPTER, 1/4" FLARE HOSE X 1/4" MALE NPT, (RS)	1
20	10-3755	PLUG, S.Q.HD. M.I. 1/8" NPT	2
21	08-7128	ORIFICE, BURNER, NAT. GAS	3
21	10-3367	ORIFICE, BURNER, LP. GAS	3
22	08-7124	ASSY, MANIFOLD, GAS	2
23	98-3855	ASSY, MAIN WATER LINE 3/8"	2
24	10-0631	LEG, 2" O.D. X 6" HIGH 3/4" THRD ADJUSTABLE	4
25	98-3858	ASSY, MAIN GAS LINE 1/2"	2
26	98-3824	COVER, LOWER BURNER COMBUSTION	1
27	98-3845	PANEL, FRONT BOILER	1
28	98-3848	PANEL, SIDES ASSEMBLY	2
29	98-3849	PANEL, REAR ASSEMBLY	1
30	98-3816	COVER, TOP MOUNT	1

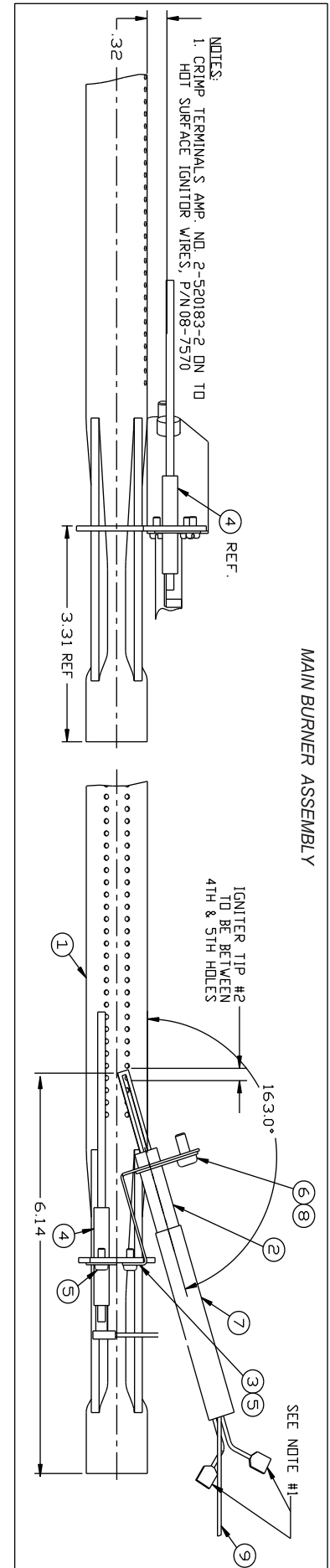
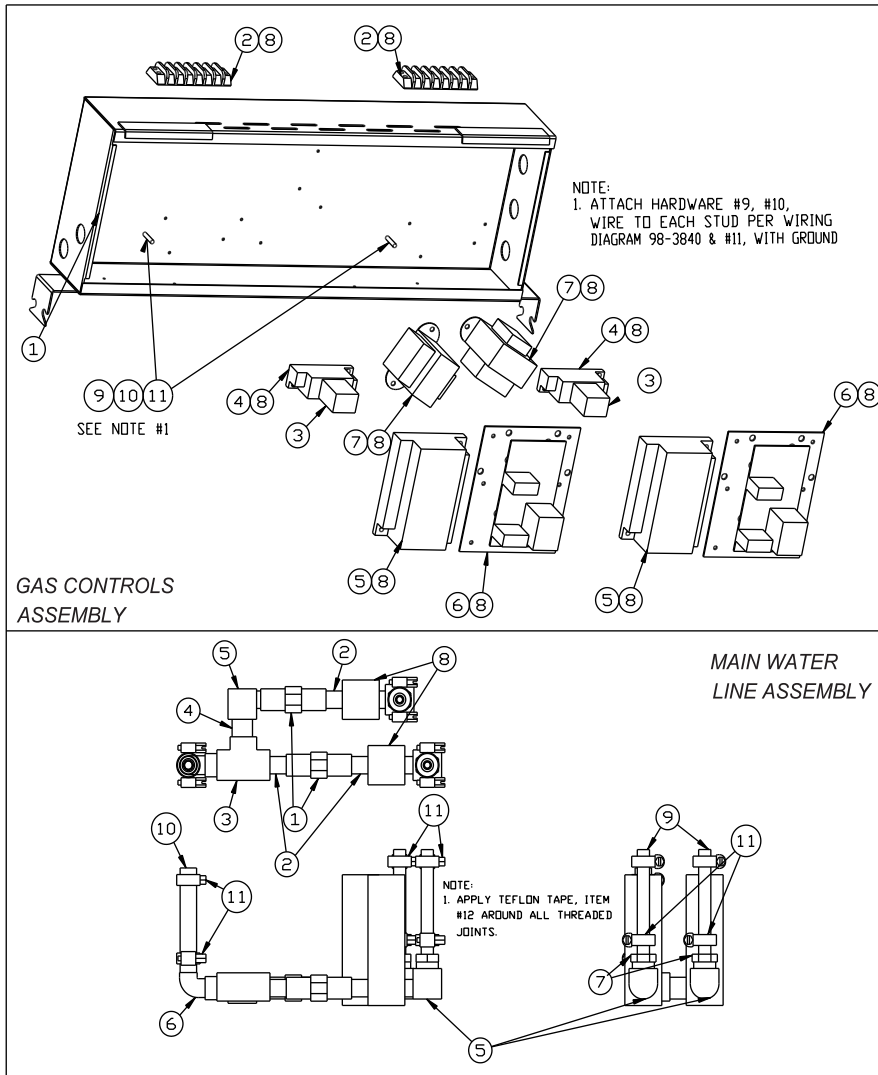
6. ILLUSTRATED PARTS LIST



CONTROL PANEL ASSEMBLY

ITEM NO.	PART NO. ST-6TGG	PART NO. ST-12TGG	DESCRIPTION	QTY.
1	98-3504	91-6489	CONTROL PANEL	1
2	98-3507	91-7612	ARTWORK, CONTROL PANEL	1
3	08-6464	08-6464	60 MIN. TIMER	2
4	08-6541	08-6541	TERMINAL STRIP	2
5	91-6471	91-6471	BRACKET, TERMINAL STRIP	2
6	10-7395	10-7395	BUZZER	2
7	08-3826	08-3826	KNOB, TIMER	2
8	10-5052	10-5052	LIGHT, RED, ON/OFF	2

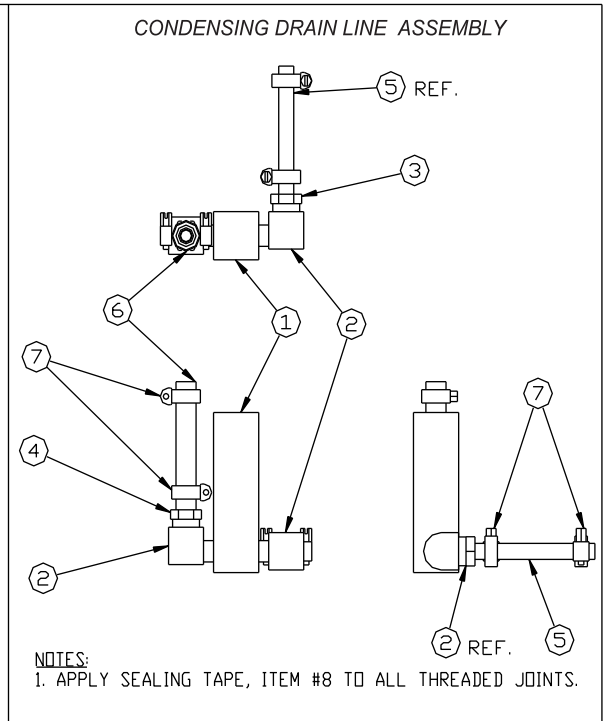
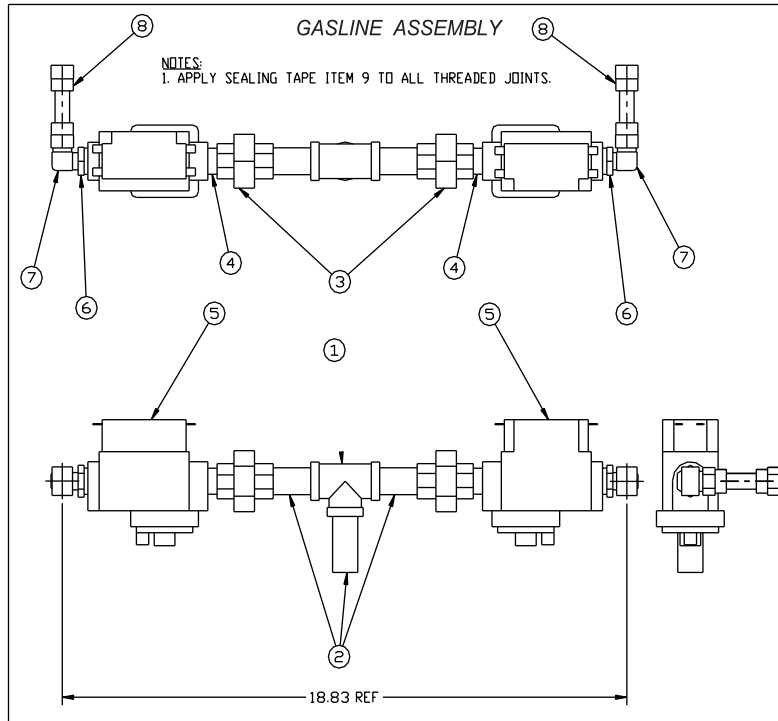
6. ILLUSTRATED PARTS LIST



ITEM	PART NO.	GAS CONTROLS ASSY DESCRIPTION	QTY.
1	98-3822	WELDMNT ASSY. BOX, GAS CONTROL	1
2	10-6005	TERMINAL STRIP, (TB-2A & TB-2B)	2
3	08-6472	RELAY, 120 VAC (RI-A & RI-B)	2
4	08-6475	RELAY SOCKET, 120 VAC (RI-A & RI-B)	2
5	08-7130	IGNITION MODULE (IM-A & IM-B)	2
6	08-6328	LIQUID LEVEL BOARD (LLB-A & LLB-B)	2
7	08-6450	TRANSFORMER 120/24 VAC. (XF-A & XF-B)	2
8	08-3515	SCREW, #6 X 3/4" LG. "F" THREAD CUTTING	27
9	10-2509	WASHER, LOCK #10, (GRD.)	2
10	10-2425	WASHER, FLAT #10, (GRD.)	2
11	10-2339	NUT, #10 GRD.	2
-	98-3841	WIRE LEAD SCHEDULE	-
-	98-3840	WIRING DIAGRAM	-

ITEM	PART NO.	MAIN WATER LINE ASSY DESCRIPTION	QTY.
1	98-0920	WELDMNT, BURNER	1
2	08-7570	IGNITER, HOT SURFACE - NORTON	1
3	98-3825	BRACKET, IGNITER	1
4	98-0062	SENSOR, (REWORK 08-6452)	1
5	08-3423	SCREW, ROUND HEAD, #4-40 X 1/4" LONG	3
6	10-1761	SCREW, TRUSS HEAD, #8-32 X 3/8" LONG	1
7	15-7552	SLEEVING	1
8	10-2408	FLAT WASHER, #8	1
9	WIRE # 94	WIRE SENSOR, (SEE WIRE LD SCH. (98-3841))	1

6. ILLUSTRATED PARTS LIST



ITEM	PART NO.	GASLINE ASSY DESCRIPTION	QTY.
1	10-3452	TEE, M.I. 1/2" X 1/2" X 1/2" N.P.T.	1
2	10-3494	NIPPLE, M.I. 1/2" N.P.T. X 2.25" LG	3
3	10-3332	UNION, M.I. 1/2" N.P.T X 1/2" N.P.T.	2
4	08-4960	NIPPLE, CLOSE 1/2" N.P.T.	2
5	08-7568	VALVE, GAS #SC-300 1/2" X 1/2" N.P.T.	2
6	10-3324	BUSHING, REDUCER-M.I. 1/2" X 1/4" N.P.T	2
7	08-5070	ELBOW, 90 BRASS - 1/4" FLARE X 1/4" N.P.T	2
8	08-7848	HOSE, FLEX ASSY, 3/8" X 12" LG	2
9	10-2660	TAPE, TEFLON - SEALING	2

ITEM	PART NO.	CONDENSING DRAIN LINE ASSY DESCRIPTION	QTY.
1	08-6498	VALVE, SOLENOID 120 VAC 3/8" X 3/8" NPT	1
2	10-1055	ELBOW, BRASS 3/8" ID HOSE X 3/8" NPT	2
3	08-4863	BARB, BRASS 3/8" NPT X 1/4" ID HOSE	1
4	98-1477	BARB, BRASS 3/8" NPT X 3/8" ID HOSE	1
5	15-7208	HOSE, S/S BRAID - 5/16" DIA. X 24" LG	1
6	15-7212	HOSE, S/S BRAID - 3/8" DIA. X 24" LG	1
7	08-1206	CLAMP, HOSE - 1.0" DIA. MAX.	4
8	10-2660	TAPE, TEFLON - SEALING	A/R

ITEM	PART NO.	MAIN BURNER ASSY DESCRIPTION	QTY.
1	98-0920	WELDMENT, BURNER	1
2	08-7570	IGNITOR, HOT SURFACE - NORTON	1
3	98-3825	BRACKET, IGNITOR	1
4	98-0062	SENSOR, (REWORK 08-6452)	1
5	08-3423	SCREW, ROUND HEAD, #4-40 X 1/4" LG	3
6	10-1761	SCREW, TRUSS HEAD, #8-32 X 3/8" LG	1
7	15-7552	SLEEVE	1
8	10-2408	FLAT WASHER, #8	1
9	WIRE #94	WIRE SENSOR, (WIRE LD SCH. 98-3841)	1
REF	98-0920	WELDMENT, BURNER	1